

Hitchcock's Machine Tool Blue Book

JANUARY, 1930

TWENTY-FIFTH YEAR

ELECTRIC WELDING WILL CUT PRODUCTION COSTS

NOT only will Taylor-Winfield electric welders economize and simplify production but they improve the product itself, thus affording added profit per unit of manufacture. For any purpose, these pioneer welders prove ideal. Made in seam, butt, spot and portable types.

Write!

**The Taylor-Winfield
Corporation**

Warren, Ohio

(Offices in principal cities)

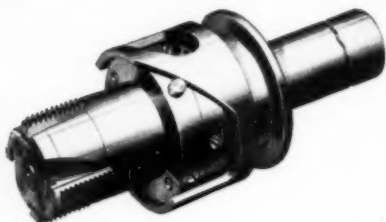


Type
"N"
Spot
Welder

**TAYLOR-WINFIELD
WELDERS**

PUBLISHED AT 508 S. DEARBORN ST. CHICAGO

SETTING the PACE!



NAMCO COLLAPSING TAPS

with

Quick Removable Chasers

Day in and day out your fastest machines will never be too fast for the new Namco Collapsing Taps with Quick Removable Chasers.

"Built for Service" just that!

Namco Collapsing Taps cut threading time—frequently the longest single operation—to a minimum. You can be assured of clean, accurate threads at low cost per piece.

A new Catalog—TD2912—is ready for you

SEND FOR IT

THE NATIONAL ACME COMPANY

CLEVELAND, OHIO

New York

Detroit

Chicago

Agencies in Principal Foreign Countries

Hitchcock's Machine Tool Blue Book

**Selected
Circulation**

**25,000
Monthly**

JANUARY, 1930

TWENTY-FIFTH YEAR

The Essence of Advertising

Precedent or custom is the antithesis of novelty.

Yet isn't novelty, as queried by N. W. Ayer & Son, in "Printers' Ink," the very essence of advertising?

The BLUE BOOK has discarded some features that precedent has decreed as regular, and has supplanted them with a novel and simple plan that is all its own.

This may explain in large measure why the BLUE BOOK has been so successful as an advertising medium—because users of metal-working machinery like its novel directness and simplicity.

Custom rules all of us more than we may realize. But we all like to experiment, too.

So why not try out the novel plan of advertising as offered by the BLUE BOOK? You will be pleased when you find it to be "the essence of good advertising."

Rates upon application

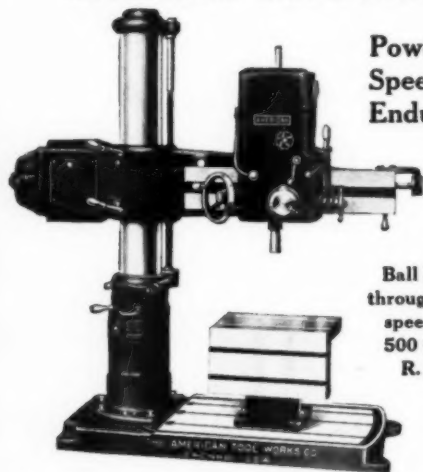
Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

AMERICAN *Maxi-Speed* *Sensitive* RADIALS



**Power
Speed
Endurance**

**Ball Bearing
throughout with
speeds from
500 to 2000
R. P. M.**

The Range of a Radial—

The Speed of a Sensitive Drill

The Maxi Speed was specifically designed to handle small holes in such work as crankcases, cylinder blocks, transmission cases, switchboards—all work that is too large to fit under a standard sensitive drill, and too small to be handled efficiently by a geared radial. Made in two models for either belt or motor drive.

Write for descriptive folder

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

LATHES

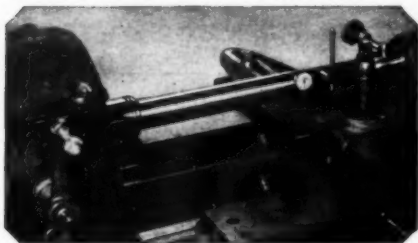
RADIALS

SHAPERS

Accuracy!

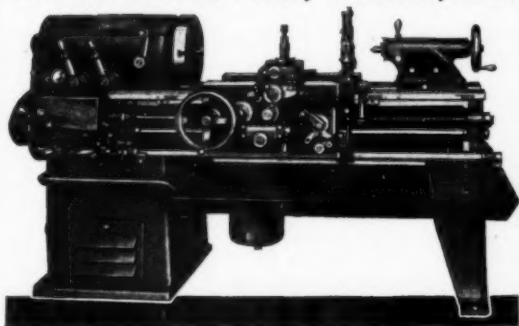
unexcelled—

NEW MODEL REED-PRENTICE Sliding Gear Head Lathe

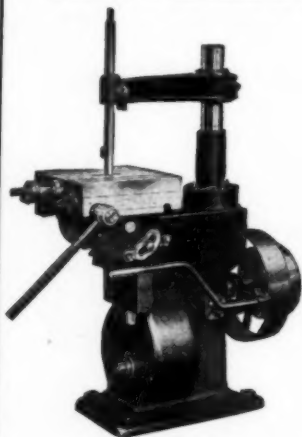


Spindle alignment—12' bar. .0005 up or down, in or out.
Spindle run out at end 12' bar within .001.

REED-PRENTICE CORP., Worcester, Mass.



BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyseats).
4. Simplicity In Operation.

Write for Catalogue

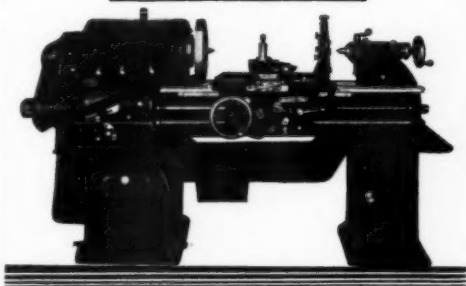
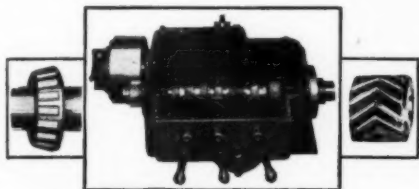
BAKER BROTHERS, INC., Toledo, Ohio

*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*

TRITROL

is a new conception of speedy, accurate lathe control for all jobs demanding hair-line dependability.

Here is a new lathe governed by the same high standards of workmanship that has made other Sidney products famous.



The Sidney Machine Tool Co.
SIDNEY, OHIO



Here Is Really Low Up-Keep For You

We say that this 11" Gold Seal Lathe is practically unbreakable and our repair experience proves it.

We shipped the first one of these lathes March 28th, 1928—Since that time these lathes have been installed in Schools, Machine Shops, Tool Rooms, Experimental Laboratories, Aviation Fields—and in fact in every line of work.

**There has not been a single charge on our books
for repairs on these lathes during all that time.**

The Sebastian Lathe Co.

1313 Culvert Street,

Cincinnati, Ohio

A Cut Like This at 620' per Minute!

SEND for this actual sample of stock removed by a Monarch High-speed Lathe—today! No obligation. Examine it in your own office for smoothness—for freedom from gear-tooth marks



THIS stock removed (at the rate of 620 ft. per minute) is concrete evidence of Monarch performance—proof that Monarch Helical-gear Timkenized Lathes turn out work that is unusually smooth and free from gear-tooth marks and chatter.

A bar of S.A.E. 1035 steel was used. The bar was 8" in diameter and extended 16" from the face of the chuck and 27" from the front spindle bearing. No tailstock or center support was used. Width of cut, 1½". Range of feed, .004 to .0065. Cutting speed, 620 feet per minute. Tungsten-carbide cutting tool was used.

*Make this test on any other lathe. Then compare results.
Send for sample of stock removed in above test.
Let it prove Monarch performance.*

The Monarch Machine Tool Co., - Sidney, Ohio
New York Office: 857 Graybar Bldg.

Monarch Lathes



Helical Gears - Timken Bearings
SMOOTHER.. QUIETER.. MORE POWERFUL



Ease of Operation

is assured if you use the CLEVELAND OPEN SIDE PLANER in your shop. Nearly 30 years of constant study and improvement by engineers who have made a study of the problems of removing metal rapidly and economically is your guarantee of unflinching performance. The greater speed, easier control, greater accuracy, fewer parts—all these features are fully described in an attractive circular.

∞

SEND FOR YOUR COPY TODAY

The Cleveland Planer Company

Established 1900

**3148 Superior Ave.,
Over 1100 Installations**

Cleveland, Ohio

**26 in.
to
72 in.**



**Send
for
Descriptive
Folder
NOW!**

**The Open Side Planer with the Column
Base Cast Integral with Its Closed Top Bed.**

High Production Features

Selective Dial Feed

Rail Clamping Device

Instantaneous Rail Lift

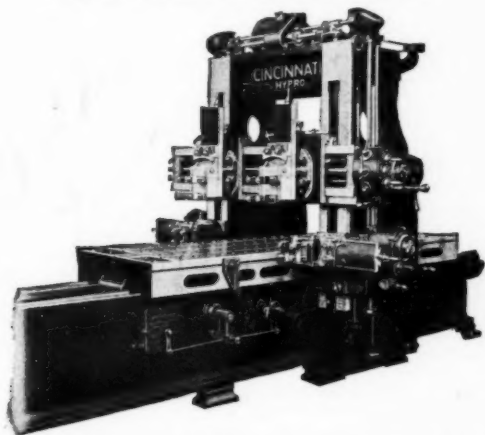
Rapid Power Traverse

Forced Lubrication

Combination Steel

Herring Bone and Spur Gear Drive

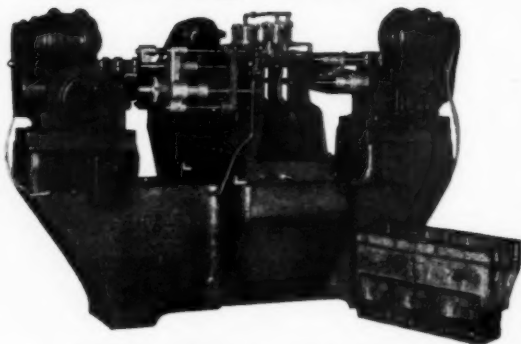
Long Inverted Dovetail Down-Slide



The Cincinnati Planer Co.
Cincinnati, Ohio

BRADFORD

Drilling Machines



Built to Meet YOUR Production Needs

BRADFORD Drilling Machines are made up with any number of spindles for drilling or tapping, or in any combination for your particular jobs. Each unit is entirely self-contained, being operated by individual motor drives. Invaluable in helping you maintain high production on your drilling, reaming, hollow milling, counterboring, tapping and similar operations.

Illustration shows a Three-Way Machine which reams seven water jacket holes to .943 dia. in cast iron cylinder block, in floor to floor time of 30 seconds per piece.

Send Blue Prints or Samples for Production Estimate.

The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

Our Latest Type Multi-Duty All Ball Bearing Radial Drill

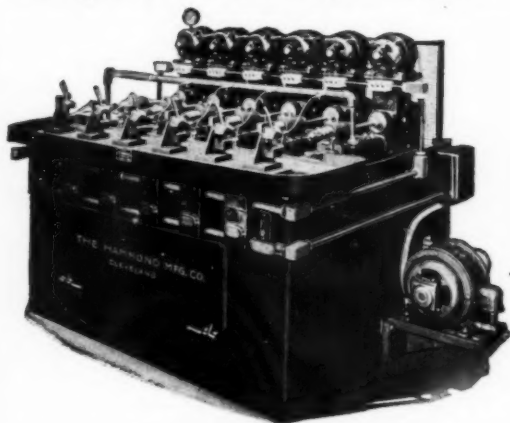


Sizes 3 to 8 Ft.

The Dresses Machine Tool Co.
CINCINNATI, OHIO

HAMMOND

Six Spindle Hydraulic Feed, Deep Hole Drilling Machine



Capacity, $\frac{3}{8}$ " Drill, 6" Deep In Steel

Write for Full Information

The Hammond Mfg. Co.

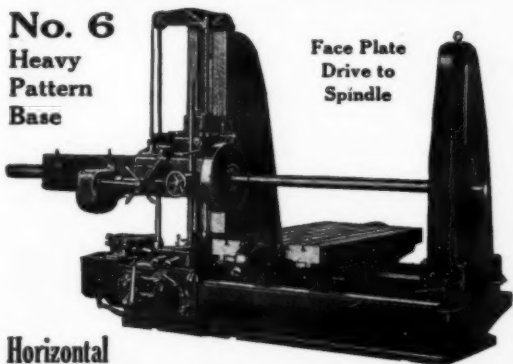
7808 Kinsman Road,

Cleveland, Ohio

The New Improved **DEFIANCE**

No. 6
Heavy
Pattern
Base

Face Plate
Drive to
Spindle



Horizontal **Boring, Milling, Drilling and Tapping Machine**

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works **Defiance, Ohio**

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**



A Modern, Low-Priced Lathe

Made in 16" and 18" swing from 6' to 18' lengths of bed. Either 3 step cone belt drive or All Geared 9 speed drive head for 2 H. P. Motor.

Standard equipment includes Power Cross Feed, Graduated Compound Rest, Steady Rest, Face and Driver Plate, Tool Post, Centers, Countershaft and Wrenches, including the modern features consisting of

Double Back Gears
Quick Change Gear Box
Chasing Dial
Lead Screw and Feed Rod

16"x6' New Design \$575.00
Weight 2000 lbs.

18"x8' New Design \$635.00
Weight 2300 lbs.

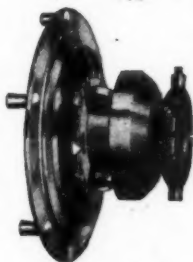
Simplicity
Accuracy
Rapid Production
Ease of operation
Low cost of upkeep
SMALL INVESTMENT

Write us for full Information and Prices

The Rahn - Larmon Co.
2941 Spring Grove Ave., Cincinnati, O.

The talking point for 1930 will be

Conway Disc Clutch Control



The Conway Disc Clutch is a product of a company which has never since its establishment in 1904, manufactured anything else.

The skill, experience, and knowledge of starting and stopping acquired by our engineers and shop personnel are a priceless heritage to the user of friction clutches.

And the Conway Disc Clutch—with easy engagement, instant release, drag-free idling and power plus—with enclosure, balance, centripetal action, underslung levers, and "no tool" adjustment—

"Is the last word in friction clutches."

Imitation is the sincerest flattery. However we will prosecute all infringements of our patents wherever we find them. If our competitors concede the superior quality of our engineering acumen, it's only good business for you users of friction clutches to consult Cincinnati on your starting and stopping problems. And believe us we are ready and anxious to give you the benefit of all we know.

The Conway Clutch Co.

1541 Queen City Ave.,

Cincinnati, Ohio

A 30,000 R. P. M. Grinder Mounted In Tool Post Holder



This Grinder is an ideal portable tool that has a wide range of usefulness. It delivers the proper surface speed and power to small wheels, giving them maximum cutting capacity. Their principle of construction is ideal for high speed, viz: a centralized vibrationless drive with no wearing parts other than two ball bearings which are kept cold by exhaust air. The motor operates continuously at less than room temperature.

Onsrud Pneumatic Turbine Drive grinders are built in five sizes having speeds from 15,000 to 60,000 R. P. M. and can be applied to practically all makes of internal grinding machines. They are light in weight and ruggedly constructed. (The unit pictured above weighs only 6 lbs.) Onsrud High Speed Motors are built for many purposes.

Send for complete illustrated literature

Onsrud Machine Works, Inc., 3906-32 Palmer St., CHICAGO, ILL.



A NEW Surface Grinder

**The
"American"
No. 2
Automatic**

Meeting TODAY'S Demands

The "American" No. 2 Automatic Surface Grinder is a thoroughly new type, designed to meet the changed conditions and demands of modern shop practice. Of unusually heavy design, it is ideal for grinding and finishing dies, punches, gauges and work of similar nature.

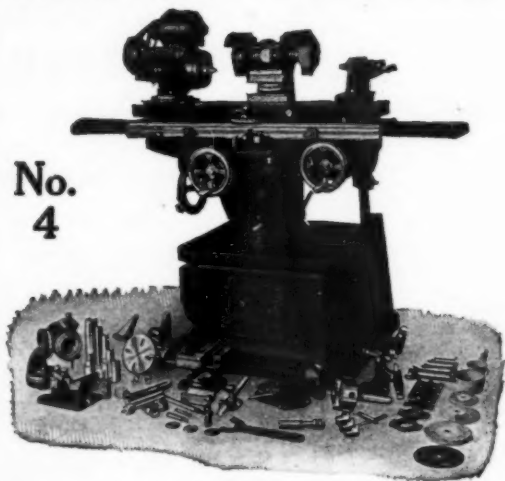
Its general construction, consisting of new and original features, makes it unequalled as a rapid work producer. Rigid box construction encloses all belts, assuring safety without unsightly guards. All slides and working surfaces are covered, protecting them from dirt and grit. Working parts are easily accessible.

Send for circular describing the many features in detail

American Machine Tool Co.
HACKETTSTOWN, N. J., U. S. A.

Grand Rapids Universal Cutter and Tool Grinders

No.
4



Sharp Tools Cut Production Costs

Good tool room equipment keeps your expensive production machinery going at top speed. The Grand Rapids No. 4 Universal Grinder is heavy and powerful, with a remarkable wide range of work. Wet or dry cutting jobs are easily accommodated with the complete attachments furnished. Motor or belt drive, with or without automatic feed. Large table, ease and rapidity of operation, long life and low maintenance are some of the factors guaranteeing efficient operation.

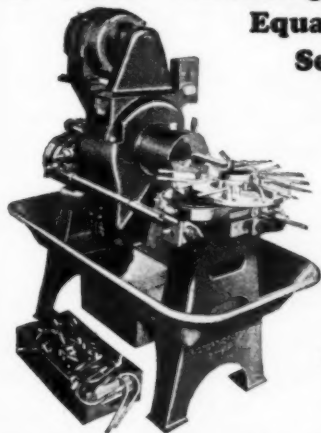
We make a complete line of Grinders—Send for details

GAILMEYER AND LIVINGSTON CO.

342 Straight Ave., S. W.,

Grand Rapids, Mich.

**Is YOUR Threading Equipment
Equal to the Pace
Set by Modern
Production
Methods**



?

**If Not—
It Will
Pay You
to Investigate
this Machine**

RICKERT-SHAFER Automatic Threading Machine

IT DOESN'T PAY to use your expensive automatics for threading—it slows up production and adds to your costs. Use the R-S Machine instead—it was designed for this purpose—and is versatile, low-priced and simple in operation.

THE R-S MACHINE can be adapted to almost every job of threading, from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading, and one chucking.

Write for Descriptive Folder and Prices

RICKERT-SHAFER CO., Erie, Pa.

Illinois Plain and Surface Grinder



This machine has been designed to meet the popular demand for those wanting a general purpose grinder. One end is arranged for surface grinding and the other end for tool or plain grinding.

Special Features

Base: Box type construction, with liberal bearing space for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths, long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, runs in 4 Timken tapered roller bearings, adjustment collars to each bearing. Bronze bearings furnished, if desired.

Countershaft: Ball bearing with tight and loose pulley and belt shifting device.

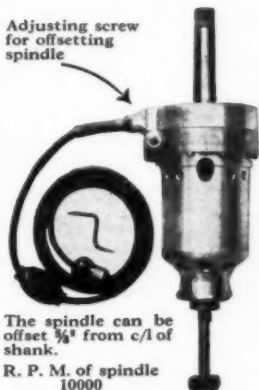
Lubrication: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

Olofson Precision Grinder

Adjusting screw
for offsetting
spindle



The spindle can be
offset $\frac{3}{8}$ " from c/l of
shank.

R. P. M. of spindle
10000

Not Merely a
Grinder—
But a Precision
Tool Built
to Precision
Standards
A Modern Tool
Designed to Meet
the Most Exacting
Requirements of
Modern Tool
Work

Extremely Versatile--Cost Saving

BY the means of the tapered shank support, the Olofson Grinder can be used in any one of the standard machines, such as vertical or horizontal boring or drilling machines, drill presses, etc. The motor case itself turns at the speed of machine spindle and should rotate at about 60 revolutions per minute. With the aid of grinding wheels of various sizes, holes from $\frac{1}{2}$ " to 3" diameter can be ground to very close limits. Used by many prominent automotive concerns—pays for itself quickly. ¶ AN ILLUSTRATED FOLDER showing the grinder engaged in grinding bushings, die blocks, punch plates, fixtures, dies, etc. is yours for the asking.

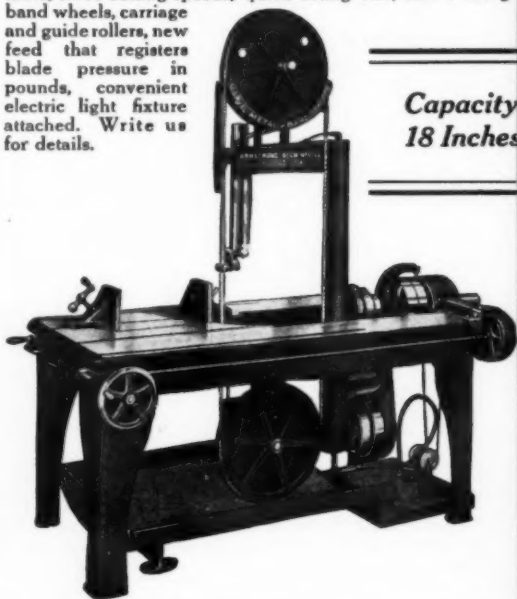
Write For It Today and Prices Too

PALMER-EDWARDS CO.
906 LEITH ST., FLINT, MICH.

MARVEL

The Marvel No. 8 Metal Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle right or left to 45 degrees, has big roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers, new feed that registers blade pressure in pounds, convenient electric light fixture attached. Write us for details.

*Capacity
18 Inches*



ARMSTRONG - BLUM

341 N. Francisco Ave

MARVEL

BLADES THAT ARE DIFFERENT

High-Speed-Edge hack saw blades have a cutting edge of *Genuine High Speed Steel* welded to a back of special heat treated alloy steel. They outlast the old style common blades 6 to 10 times and are guaranteed *Not To Break* in any machine. *The Blade That Appeals To The Man In The Shop.* Get the details from us.

Special Alloy Heat
Treated Back—for
greater strength

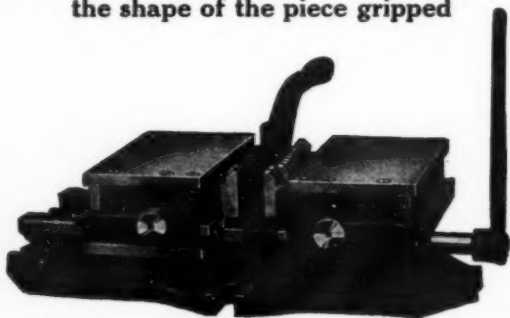
Patented
Electric
Weld—
fused
integral

Genuine High Speed
Steel Cutting Edge—
for greater cutting
efficiency

MANUFACTURING CO.
CHICAGO, ILLINOIS

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

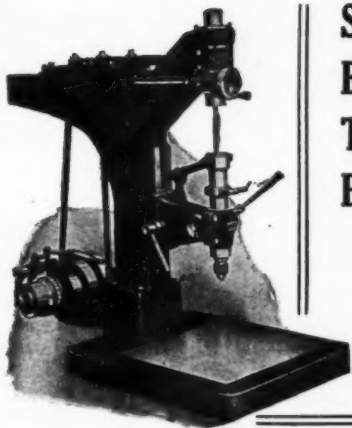
Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI



**Speed
Eliminates
Twist Drill
Breakage.**

WHY?

**THE
SPEED KING**

Avey

**No.
 $\frac{1}{2}$**

**SPEED
12,000
R. P. M.**

*Ask for full
Information*

A fine twist drill will only stand so much pressure with resistance until it snaps.

Put enough speed behind that little tool and it cuts so fast that resistance disappears and it's just like cutting butter.

It Pays to Specialize

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

Production Accuracy at low operating cost

TIMKEN
ROLLER
BEARINGS

Ready for
the Job!



15-inch Sliding Head Sensitive Drill

Mounted on Box Type
Column with
Oil Groove Table

Spindle Speeds—
400, 850, 1750 R. P. M.

Capacity 0 to 1/2".

This drill can be furnished
in speeds ranging from
400 to 10,000 R. R. M.

SPECIFICATIONS—1 Spindle

Overhang	7 1/2"
Vertical adjustment of sliding head	9 1/2"
Traverse of feed rack	3 1/4"
Center of spindle to column at gap	8 1/2"
Center of spindle to planed column face	7 1/2"
Distance between spindle centers	
Size of Table	16" x 20"
Size of base of lower column	23" x 18"
Maximum Distance from spindle to table	33"
Width of table bearing on column	4"
Height to upper edge of top bearing cap	73"
Net wt. mounted on base and pedestal	505 lbs
Crated weight	613 lbs.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

C-O No. 32 Ball Bearing Sensitive Bench Drill, Motor Drive

Ready for the Job!

BALL BEARINGS



110 volt, 60 cycle,
single phase, A. C.

\$54.00

For other
voltage, write
for price

THE No. 32 Motor Driven Bench Drill is furnished complete with $\frac{1}{4}$ H. P., vertical type, ball thrust motor, attached in such a manner which permits it to slide in or out, thereby giving a very convenient means of obtaining proper tension of the belt; also toggle type switch, extension cord and socket, $1\frac{1}{4}$ " endless leather belt and chuck.

SPECIFICATIONS

Sp. speed, 560—1030—2800 R.P.M.	Size of belt, $1\frac{1}{4}$ ".
Drills to center of 10" circle.	Up and down run of spindle, $2\frac{1}{2}$ ".
Capacity, 0 to $\frac{1}{2}$ ".	Up and down run of table, 7"
Net weight, 73 lbs.	Greatest distance bet. spdl and table, 9"
Shipping weight, 93 lbs.	Distance from frame to center of sp. $5\frac{1}{8}$ ".
Cone pulley diam., $5\frac{1}{8}$ — $4\frac{3}{16}$ "— $2\frac{1}{2}$ ".	Diameter of table, 8"
Cone pulley face, $1\frac{1}{16}$ ".	Height, $30\frac{1}{4}$ ".

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

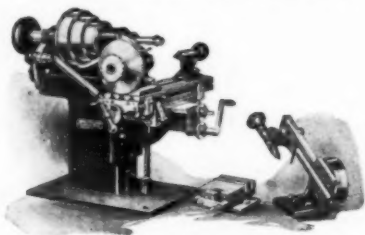
Complete stock
carried at branches

San Francisco Branch
955 Folsom St.

HARDINGE

Cataract Better Work Bench Miller

Speed Accuracy Adaptability



Many years of practical experience and designing has brought forth a miller which fulfills the demands of our day—speed, accuracy and adaptability.

Our *Cataract Bench Miller* has a wide range of feeds. It has independent steel indexes graduated to read to thousandths of an inch, and is equally well adapted for the lighter tool-room, mixed or production work.

*Complete data and interesting price
gladly sent on request*

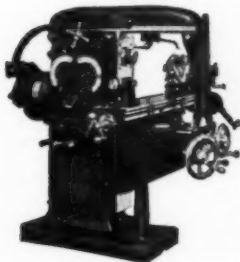
Hardinge Brothers Inc.
4149 Ravenswood Ave.
Chicago, Ill.

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.

No. 2 Ohio
Universal
Constant Speed
\$ 1775

No. 3 Ohio
Plain
Constant Speed
\$ 1880



Consider

these features also:

- (1) Vee-flat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

MORE THREADS PER TAP IF YOU USE THE FREW TAPPER



No. 1
Capacity
to $\frac{1}{2}$ "

Direction of Rotation Mechanically Controlled.

The Operator Pulls The Hand Lever—

The Machine Does The Rest.

*Timken Roller Bearing
Equipped*

Long bronze bearings, carried in Timken Roller Bearings, eliminate crooked tapping and tap breakage. The alignment is so perfect that tap withdraws from hole without the slightest chance of stripping the last thread. The FREW will meet your most rigid requirements on standard long run jobs—and on short runs too. Multiple heads and foot lever attachment may be secured.

BELT OR V BELT MOTOR DRIVE

Write for complete information—and if you have any production tapping problems, we'll be glad to help you

THE FREW MACHINE CO.

136 West Venango St.,

PHILADELPHIA, PA.

SUPERIOR



Single Spindle Hand Milling Machine

**Can be Used
for
Vertical
or
Horizontal
Milling**

Great Range and Adaptability

This SUPERIOR Milling Machine is equipped with a vertical head which is adjustable at any angle, and is readily removable so that the machine can be used as either a vertical or horizontal mill of very great range and adaptability. Has built-in friction countershaft, and is arranged to run direct from the line shaft, or with motor drive. Pump and tank for cutting compound can be added if desired.

Write Today for Full Details of this Versatile Miller

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

1920 Ferry Park,

:-:

:-:

Detroit, Mich.

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

FEATURES OF **LEHMANN LATHES**

The features of "LEHMANN LATHES" embody the latest approved ideas in lathe construction and also some improvements exclusively a part of these machines.

16 Speed Headstock: Running in oil—simplicity of construction—only 10 gears required—all gears heat-treated or hardened—all shafts, except spindle, mounted on ball bearings.

Spindle: Alloy steel—hardened and ground—patented double spindle nose.

Carriage: Wide deep bridge—wipers and oil reservoir for ways.

Tailstock Spindle: has improved locking device.

Bed: Deep and wide—braced by large cross-ribs—chilled ways.

Apron Control of Clutch: for forward and reverse—similar handle at headstock end.

Apron: Double plate type—removable front plate—central oiling system.

Rod and Screw Shift: Positive and safe,

Patented and Quick Change: Wide range—central oiling system.

Improved Friction Clutch: Forward and reverse—running in oil—self adjusting.

Geared Head and Cone Head—Double Back Geared

Made in Sizes from 16" to 24"

*Write for Catalog giving complete details of
these 10 Features—and many others*

LEHMANN MACHINE CO.

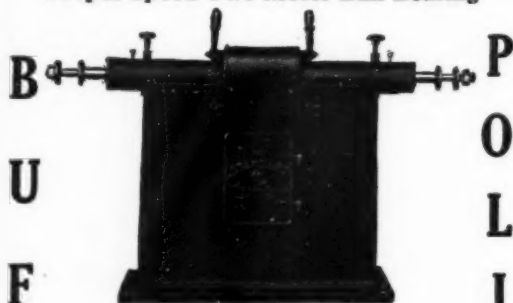
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STANDARD

Proper Speed Two Motor Ball Bearing



front view



rear view

Embraces features like

2 40° G. E. motors with independent Push Button Controls.

4 SKF ball bearings.

Dayton cog belt drive.

Spindles with hand brake and locking device for changing wheels.

Made in 3, 5 & 7½ H. P. Sizes

Bulletin describing mechanical features and specifications on request

The Standard Electrical Tool Co.

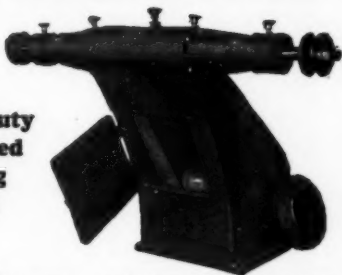
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Established 1912

Cincinnati, Ohio

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U. S. Heavy Duty Selective Speed Ball Bearing Buffer and Polisher



Wherever impartial, comparative tests are made with various makes of buffers and polishers, U. S. *Selective Speed* Buffers and Polishers score highest by several points. You can prove this yourself. Or let us send you names of firms who have made such tests.

U. S. *Selective Speed* Buffers and Polishers maintain their speed under load with least current consumption and reduction in speed. One-piece chrome-manganese alloy steel spindle



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Best of all, U. S. *Selective Speed* Buffers and Polishers provide any wheel speed desired from 2000 to 3000 r. p. m. Get all the facts.

Ask your jobber or write us today.

THE UNITED STATES ELECTRICAL TOOL CO.

Oldest Builders of Electric Drills and Grinders in the World
2461 West Sixth St., Cincinnati, Ohio, U. S. A.
Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

Abolish Expensive Hand Finishing

with a



Simplex-A Abrasive Band Grinder

This grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren St., New York

Convenience means more than r. p. m. in speeding grinding



Handling operations ABOUT THE MACHINE often waste more time than high machine speed gains.

PORTER-CABLE BELT GRINDER, B-3

adds these grinding conveniences to high r. p. m.

1. 2 machines in one—vertical or horizontal—easily changed in only 5 minutes.
2. Saves holding of medium-size pieces for large machines. (Grinding bed 10" x 23").
3. Compound angles—Table tilts 45° down, 15° up.
4. Quick belt change.
5. Removable dust guards—to give larger surface when desired.
6. Portability—goes to any job where electric outlet is available.
7. Straight-grain finish on any material—metal, wood, bakelite, celluloid, bone, fibre, etc.

PORTER-CABLE DISC GRINDER, D-2

offers these grinding conveniences.

1. Saves holding of small pieces for larger machines (15" disc).
2. Angular accuracy—Table tilts 45° down, 10° up, angle gauge 45° right or left.
3. Core Print Gauge—6 center points.
4. 90% dust removal—vacuum exhaust.
5. Portability—casters take it to any job where electric outlet is available.
6. Tool room use—fitting and finishing, and removing burrs from stampings.

Send for complete data on Porter-Cable Disc, Spindle and Belt Grinders.



THE PORTER-CABLE MACHINE COMPANY
SALINA STREET, SYRACUSE, N. Y.

PORTER-CABLE

GRINDERS

3645

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

**Are made in
three sizes,
with either
single or
double action**

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

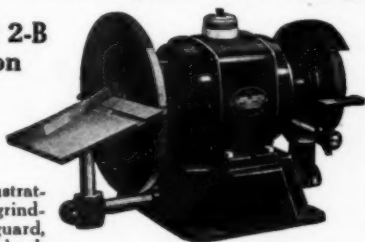
Descriptive circular gladly sent upon request

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.

Winterhoff Portable Electric Grinders

Equipped with Timken Tapered Roller Bearings

**Nos. 2-A & 2-B
Combination
Tool and
Disc
Grinders**



Complete, as illustrated, with 10"x1" grinding wheel and guard, 12" or 14" disc wheel, tilting table with protractor guard, toggle switch and cord fitted with attachment plug. Repulsion induction motor, $\frac{1}{2}$ or $\frac{3}{4}$ h. p., single phase, a. c. or d. c. Other models include the No. 1-B, an 8" or 10" Portable Grinder; Nos. 3A and 3B Double End Disc Grinders, 12" or 14" disc.

Write for Grinder Catalog, including Low Prices

Portable Electric High Speed Sensitive Bench Drill



No. 0 JUNIOR DRILL
10 $\frac{1}{2}$ " Swing, 0 to $\frac{3}{8}$ " Capacity

Positively the greatest value ever offered in a machine of this kind. $\frac{3}{4}$ h. p. motor, two step cone pulley gives speeds of 1100 and 2200 r. p. m., horizontal drive gives full power to the 1 $\frac{1}{4}$ " endless belt. Driven cone has bearing support at each end; all parts accurately machined and interchangeable, complete with First Grade Chuck.

Equipped with General Electric Motor

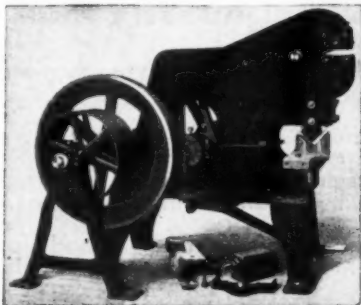
We also make a line of portable, electric Saws and Sanders

Detailed Information Sent Upon Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

BELOIT

Combined Power Punch and Shear



Arranged for belt or motor drive

Indispensable For Any Shop

THE BELOIT Combined Power Punch and Shear is actually three machines in one, as it combines the single end punch with alligator shear for flat bars, and the round cutters for round bars—and this three purpose machine sells for the price of a single end machine!

The BELOIT has proven itself to be the most serviceable and successful on the market today, regardless of price. It is sturdy, well built, compact, quiet, easy to operate, and can be equipped with angle shearing attachment, angle notching and coping attachment if desired. Built in seven sizes.

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Hendley & Whittemore Co.

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PUNCHES—SHEARS—BENDING ROLLS

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement.

Speeds from 875 to 10,500 R. P. M.

For Snagging, Burring, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball Bearing Hand-piece, Ball Bearing Motor, Universal Swivel.

Complete Line of Accessories

Rotary Files, Sanding
Drums, Emery Wheels,
Wire Brushes, Polishers, Etc.

STOCKS AT

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Cleveland
Detroit
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*Write us today for list of users
in your line of manufacture*

**Keller Mechanical
Engineering Corp.**

KME

58A Washington St.,
BROOKLYN, N. Y.

Builders of the Keller Automatic Die Cutting Machines





Threading at 3000 R. P. M.

These rods are being threaded with a No. 8-32 thread 5-16" long, at an average production of 1400 pieces per hour on our standard High Speed Tapping Machine.



*How about your
threaded work ?*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

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LELAND - GIFFORD

The BULL DOG

"The Drill with a BITE"

New Model—

New Features—

16 of Them!

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Details**

Won't
Stall—
Break—
Pull Loose



This new improved 1930 Model Drill, with SKF ball-bearings designed for rough usage, is the finest tool ever built—in fact, it's so good it's unconditionally guaranteed for a year.

1/2"
**Heavy
Duty**
Only
\$48

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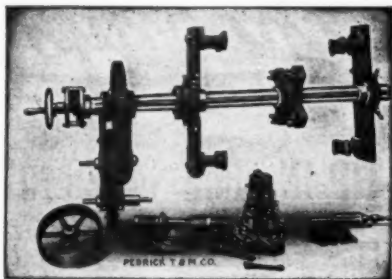
Give it a slam-bang, rough-house test for a week on the toughest job you can find. Watch it go through iron 2" per minute—through tough oak 5" thick in 30 seconds. If your dealer cannot supply—write direct to us at address below.

National Electric Products Co.

Dept. H.

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Pedrick Portable Tools



Portable Cylinder Boring Bars

For re boring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

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Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.



A TIP IN TIME SAVES NINE

The Etchograph Elkonite Marking Tips and Pencils make Etchograph Electric Marking on Hardened Tool Steel, High Speed Steels, Stellite or Carboloy, as easy as writing with a pencil. Clearer and Deeper Marking.

Greasy surfaces no problem.

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TODAY!

Production Demands

Flex Filer

**Fast and
Accurate
Methods**

Such work as production filing and sawing, die making, pattern making and light grinding operations can be done with more speed and accuracy by using

**Save
60%**
on your
**Filing
and
Sawing
Costs**

The J. & B. Filing and Sawing Machine

**With the Flexible Shaft
Attachment**

A complete tool and die makers, die sinkers and pattern makers machine.

A Real Cost Cutter

*For More
Complete Details
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LaPorte Machine & Tool Co., Inc.
LaPorte, Indiana



Patented

the WELLS metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

* The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing**, strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than $\frac{3}{16}$ "—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

EXCELSIOR

Circular Angle Bending Machine No. 14

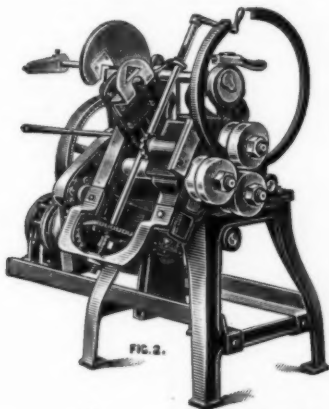
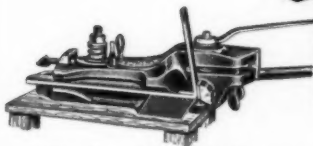


FIG. 2.



Band and Angle Iron
Forming Machine No. 13



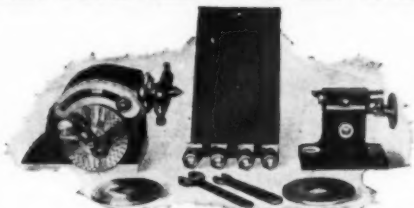
Mfgrs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.
East St. Louis, Illinois

STEVENS DIVIDING HEADS

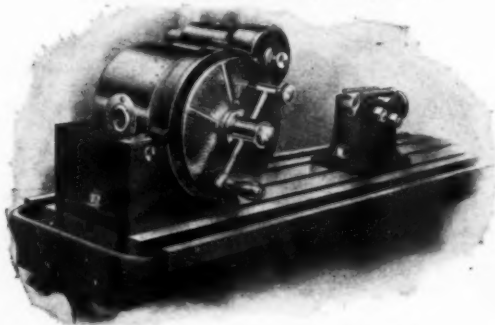
(FORMERLY GARVIN)

PLAIN TYPE—Made in Two Sizes—10" and 11"



DOUBLE GEARED-BARREL TYPE

Made in Three Sizes—10", 12" and 14"



**Special Circular Sent on Request
Manufacturers Of**

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

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JOHN B. STEVENS INC.

25 Cleveland Place,

New York City

KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All - Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

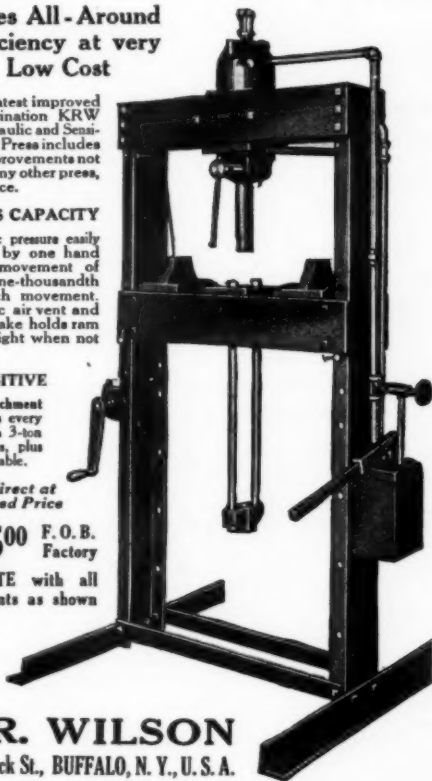
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

\$115⁰⁰ F. O. B.
Factory

COMPLETE with all
Attachments as shown



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10-14 Lock St., BUFFALO, N. Y., U. S. A.

**K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City**



**Portable
Foolproof
Durable**

**Used on
A. C. Light
Current**



View of Luma Marking
and Demagnetizing hardened
steel tool in same operation.

Marks hardened steel tools, samples of steel metallurgical specimens, special fixtures, etc. permanently and quickly with department and operation identification.

No Fuss or Muss

Demagnetizes large steel blocks, or small steel tools instantly and thoroughly.

*A Time and Labor Saving Combination well
Worth investigating by any Plant Manager.*

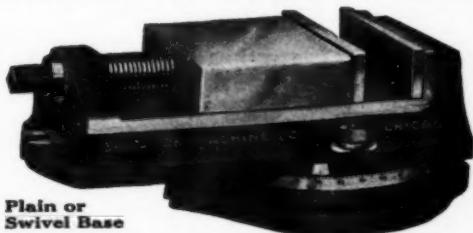
Luma Electric Equipment Co.

Main P. O. Box No. 132

Dept. H.

TOLEDO, OHIO

SHELDON MILLING MACHINE VISES



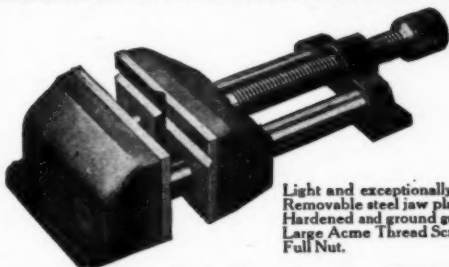
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/4"	1 3/4"	2 1/4"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 3/4"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/2"	1 1/2"	4"	15 lbs.	\$12.00
D-6	6 1/2"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 1/4"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

Champion Tool Holders

SAVE

Expensive Tool Steel



CHAMPION
Tool Holders are made of drop-forged steel, thoroughly case-hardened, and are equipped with an unbreakable "Mac-it" set screw.



This tool is indispensable for inside threading and boring. Takes any length of cutter, which may be used down to short lengths. Cutters, drills, reamers, taps and many other tools can be used in this Holder.

Let us tell you more about our Turning Tools, Boring Tools, Planer Tools, Cutting-Off Tools, Threading Tools, Grooving Tools and the Champion Drill Holder.

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The Western Tool & Mfg. Co.
Springfield, Ohio

Type RF-M4 Machine



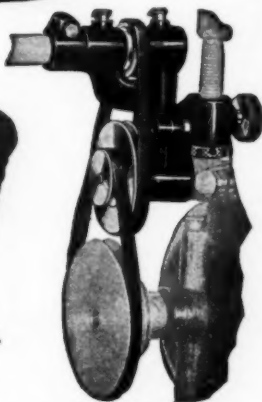
Strand

Capacity— $\frac{1}{4}$ H.P.

For
**Rotary Filing
Grinding
And
Polishing**

10,000 R. P. M. Attachment
Furnished Extra
when Required. See
Illustration.

Attachments



N. A. STRAND & CO.

Manufacturers

5001 No. Lincoln Street
CHICAGO

PATENT APPLIED FOR



MACHINE TOOL AND GENERAL
PURPOSE PUMP



MOTOR DRIVEN UNITS
 $\frac{1}{2}$ to 5 H. P. 5 to 75 G. P. M.

VOLUME PUMPS

56 **FULFLO delivers coolant in volumes which promote efficiency in cutting tools.**

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective,

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump.
All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

GUSHER PUMPS



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{3}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

Withstand the Constant Wear and Tear of TIME

GUSHER PUMPS are built to outlast the machines they serve. To accomplish this the makers have eliminated all packing nuts, foot and relief valves, and the necessity for priming as well. The deteriorating effects of friction are banished through the use of ball bearings, and the ball bearings are protected against the effects of the lubricant by the obtaining of perfect hydrostatic balance.

Dirt-Grit-Chips-

These ancient enemies of all lubricating systems, in spite of their menacing threats, are powerless to effect the sturdy GUSHER Pumps. For they are all constructed in such a way that foreign substances pass through without injuring the mechanism in the least.

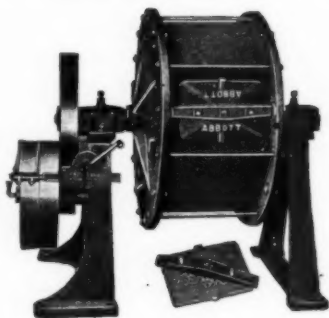
Gusher Lubricant Pumps

are made in many styles and sizes, of all desirable capacities, with individual motor or belt drive. Can be furnished, if desired, to set outside reservoir and connect by piping.

*Write for complete Catalog of "GUSHER PUMPS"
with facilities from 12 to 75 gallons per minute.*

The Ruthman Machinery Co.
528-534 E. Front St., Cincinnati, Ohio

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1930

Ball Burnishing

is always up to date because it is the most economical method known, of finishing small metal stampings, forgings and castings.

A wide range of equipment sizes are available, and the low cost of this method makes it adaptable to the finishing of both small and large production lots.

Our Experimental Department will gladly put through samples to show exactly what Ball Burnishing will do. Why not investigate?

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn.

No. 10 Ball Bearing Punch



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ " Iron
Weight, 8½ lbs.

No. 8 Roller Bearing Punch



Operating handles will not
become disengaged.

CAPACITY— $\frac{1}{4}$ " hole thru $\frac{1}{4}$ "
iron. Weight, 16 lbs.

Made in 3 sizes: Nos. 7, 7½ and 8.

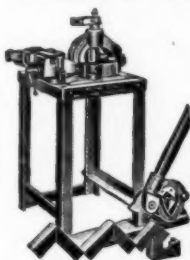
No. 20 Ball Bearing Punch



Capacity, $\frac{1}{2}$ -inch hole
through $\frac{1}{2}$ -inch iron

Weight, Complete
20 lbs.

Angle Iron Combi- nation No. 455



Shears, Notches and Bends
a 2-inch by 2-inch by $\frac{1}{4}$ -
inch Angle Iron in One
Minute Flat.

No. 6 Slitting Shear Roller Bearing



Capacity $\frac{3}{8}$ thickness. Throatless
Drop Forged

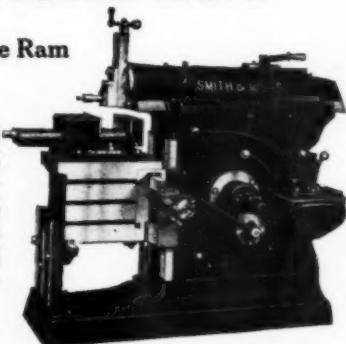
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Whitney Metal Tool Co.
95 Forbes Street, Rockford, Illinois

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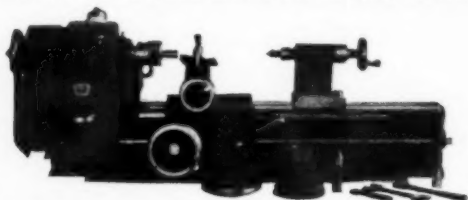
"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

9" A.V. Carroll Geared Head Lathe



A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

All steel gears, three changes in head and gear box. $\frac{1}{4}$ H. P. motor direct connected. Cuts right or left hand threads. Furnished also with three step cone belt drive.

Circular on request

A. V. Carroll Machine Tool Co.
Norwood, Cincinnati, Ohio

12 SPINDLE SPEEDS

Chrome Nickel Steel Gears



**C. & J. 15/16-inch
Geared Head
Motor Drive Lathe**

ASK FOR FURTHER DETAILS

**Carroll & Jamieson Machine Tool Co.
Batavia, Ohio**

The NEW HAMILTON



LATHES

are unsurpassed for strength and accuracy. Most convenient heavy duty quick change gear lathes for production and tool room use. Single and double back gear with cone drive. Geared head with belt and motor drive.

Sizes 16'-18'-20'-22' and 24'

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The Hamilton Tool Co., Hamilton, Ohio

Special Machinery Builders

Our many years of experience in specialized machinery building has placed us in a recognized class.

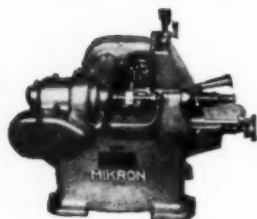
Your special machinery requirements should be analyzed by expert engineers.

We can design your machines or work according to your specifications.

Also Dies, Jigs and Fixtures

Jarecki Machine & Tool Co.
Dept.B Grand Rapids, Mich.

MIKRON



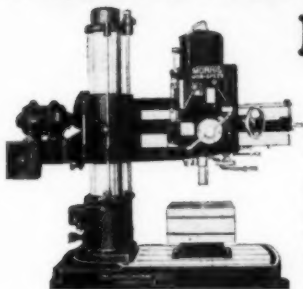
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SMALL PRECISION**

**Gear Hobbers
Gear Cutters
Pinion Hobbers
Thread Millers
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**Built in
9-11-13"
Column Diameters**

This is the last word in Radial Drill Design. Timken Bearing equipped. All speed and feed changes located in the head. Many other features.

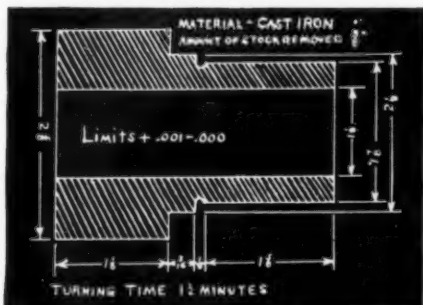
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The Morris Machine Tool Co.
CINCINNATI, OHIO

Represented by The Pratt & Whitney Co. Sales Agencies

Chard Lathe Company

Newcastle, Indiana



Above Operation Was Turned On A Chard Manufacturing Lathe.
Compare This With Similar Jobs.
Let Us Tell You More About It.

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In Stock—Immediate Delivery



Gears, speed reducers, sprockets, thrust bearings, flexible couplings, pulleys, etc. A complete line is carried in our Chicago stock. Can also quote on special gears of any kind. Send us your blue prints and inquiries.

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CHICAGO GEAR WORKS

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CHICAGO, ILL.

STANDARDIZATION PAYS



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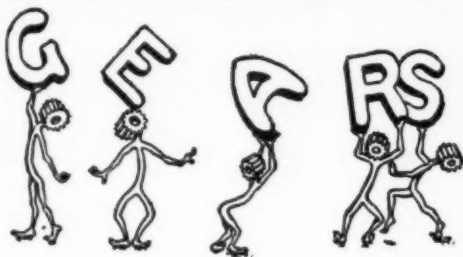
SPEED REDUCERS

For light drives and
continuous operation
(TIMKEN EQUIPPED)

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BOSTON GEARS



ALL
TYPES

Mass.



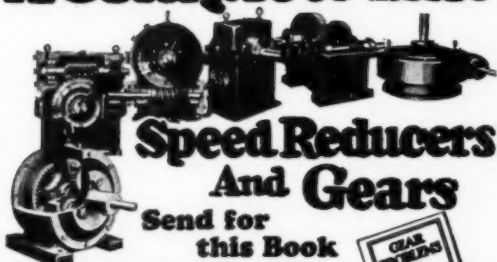
Gears

ALL
MATERIALS

MEDIUM and SMALL SIZES

MASSACHUSETTS GEAR & TOOL CO.
36 Nashua St., Woburn, Mass.

A Complete Line



**Speed Reducers
And Gears**

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this Book

**FOOTE BROS.
GEAR & MACHINE CO.**

Dept. 34, 111 N. Canal St., Chicago

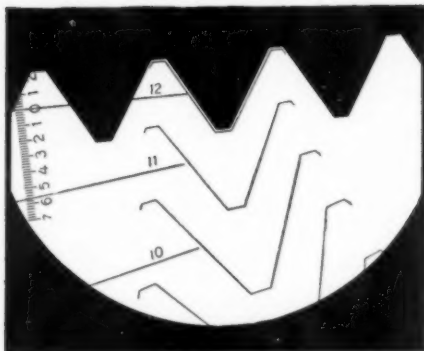
World's Standard Gear Products



Est.

1859

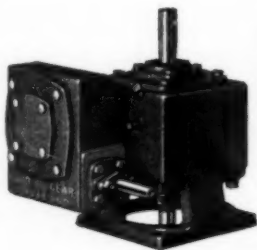
Optical Thread Measuring



will
detect
errors
visibly,
without
guessing.
Independent of
feel or
contact.

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Write for
catalog
on ZEISS
Toolmaker's
Microscope

George Scherr Co., 141 W. Liberty St., New York



DOUBLE SPEED REDUCERS

Reductions
up to 24,000 to 1

Catalogue 29A.

THE OHIO GEAR COMPANY

1331 East 179th Street

- Cleveland, Ohio

Airport Service Lathe

14"-21" Swing



Motor Drive
Direct Geared
Removable Gap

for
accuracy—endurance—speed

FAY & SCOTT, Dexter, Maine

E-Z THREAD DIAL

Thread cutting on engine lathes made easy, and at lower cost.

Made in four sizes.

Can be easily attached to all size lathes.

A reliable device that will aid the operator in the work of cutting threads.

With it threads can be cut close up to shoulders as easily as the ordinary thread.



Eliminates stopping or reversing the lathe.

The many repeat orders received prove it is satisfactory after trial.

Can be shipped within two days after receipt of order.

Sent on thirty days' trial. Send for latest folder today.

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PEERLESS

For Flat
Work



8 Sizes

Write for Circular

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

THOMPSON
12"x36"
Universal

**For All Kinds
of GRINDING**

Plain, edge, die, surface, cutter
and reamer, and internal—and
good at all of them.
Efficient, accurate,
dependable.

Work adjusts to
a fixed grind-
ing wheel, an
exclusive feature
that's better.

Machines are equip-
ped with the new auxil-
iary coarse cross feed
for surface grinding.

**Saves
Time
and
Money**



**The Thompson
Grinder Co.**

1534 West Main St.,
Springfield, Ohio

TRY us on your Difficult Riveting Job



We have solved the riveting problem for many manufacturers, who thought hand riveting was their only way out, until they investigated the "GRANT," which does their work better and at much less cost.

"GRANT" Noiseless Rivet Spinning Machines and Rotary Vibrating Riveters cover all classes of work, including awkward pieces and riveting in out-of-the-way places.

*Send samples of your work
for riveting and cost estimate*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Vanderbeek Universal Joints

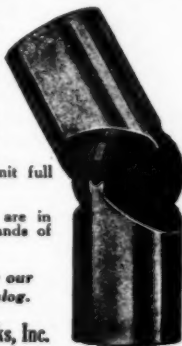


—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.
Hartford, Conn., U. S. A.





Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*



For Your **RIVETING**

Linley Rotary **RIVET SPINNERS**

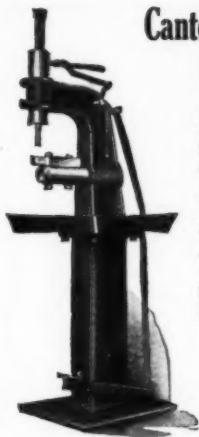
**Cover a wide field of riveting.
Simple in design but—
Rigid and powerful.
Made in 15 Models.**

**Get the full details before buying
a riveter**

**WE ALSO MANUFACTURE
EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES**

SEND FOR DESCRIPTIVE FOLDER

Linley Brothers Co., 579 Fairfield Ave.,
Bridgeport, Conn.



Canton Pedestal and Bench Pneumatic Riveters

Nothing absorbs shock like compressed air. That is why mechanical substitutes are inferior.

No cams or gears, no rubber, leather or wood in these machines.

You get real hammer blows and many of them when you use Canton Pneumatic Riveters.

*We also build a complete line of
Chipping and Calking Hammers*

Canton Pneumatic Co.
1720-9th St., S. W., Canton, Ohio



Townsend Centrifugal Multi-Blow Riveters

You have heard of them.

Used in all countries.

The one riveter that imitates riveting with hand hammer and set.

17 STYLES

Rivets from from .008" to 5/16" without distortion, or breaking fragile materials—porcelain, glass, hard rubber, bakelite, carbon, etc.

Especially for fine, high grade work.

H. P. Townsend Mfg. Co.
Hartford, Conn.

NATIONAL

KEYSEATERS ENLIGHTEN

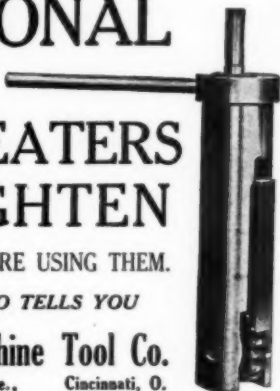
THOSE WHO ARE USING THEM.

CATALOG O TELLS YOU

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



Keyseats Shafting In Place

Anywhere, in any position



**The BURR
Portable
Keyseater**

Cuts accurate
Keyways up to
12' long any-
where, in any
position, in
shafts up to 5"
diameter.

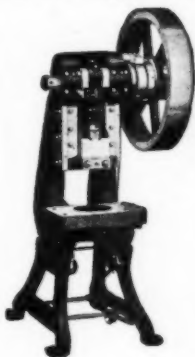
DON'T WAIT until you need it, when you would gladly pay
10 times its cost to have one—ORDER NOW.

Over 10,000 in use. Will you be the next to play safe?

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

The Spirit Of the Times



is reflected in the speed and stamina of Rockford High Duty Punch Presses.

They are built to produce and maintain High Production—and they do it.

Wide range of sizes and types.

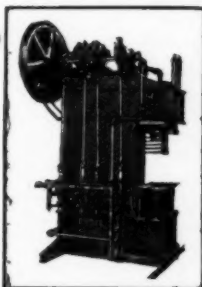
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Rockford Iron Works
Rockford, Ill.

Hydraulic Pressure To Meet Your Specific Need

No matter what your need—whether for straightening, drifting, forming, broaching, etc., Lourie Presses can serve you in any capacity.

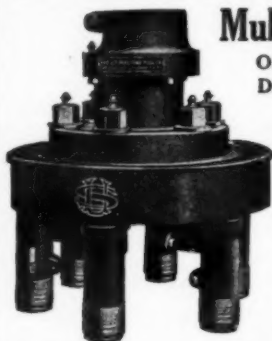
Perhaps you are encountering difficulty in forcing that can be accomplished more soundly and economically by hydraulic pressure. New uses for the Lourie Press are being found daily!



Steel Plate Construction

Our Engineering Dep't. welcomes the opportunity to suggest methods of applying hydraulic pressure. Ask for Bulletins 1301-2.

LOURIE MFG. CO., 565 W. Washington
Blvd., CHICAGO



Multiple Drilling

On Your 1-Spindle
Drilling Machine

The U. S. Multiple Drill Head converts any single spindle drill into a multiple drill press with two to six adjustable spindles that will drill any pattern while utilizing the same speeds and feeds required for drilling one hole at a time.

Send your problems to our drill-head experts. If necessary, they can design special heads with fixed or adjustable spindles to fit your needs.

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

The U. S. is Accurate Simple, Rugged

This completely motorized, 14" sensitive floor drill can be relied on to give accurate, sturdy service drilling holes $\frac{1}{2}$ " and smaller.

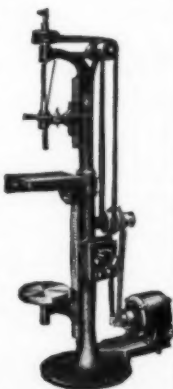
Price with motor,
switch and belts - **\$115**

Or with Counter-
shaft for Belt Drive **\$70**

Made of quality materials according to the best mechanical practice. The spindle is provided with a ball thrust bearing, and is counterbalanced by weight inside column. There is a vertical adjustment to head, and tables are adjustable to any type of work.

Let us send you full mechanical details

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



"Buffalo"

ANNOUNCES

THE NEW

14" Sliding Head Hi-Speed DRILLS

Floor or Bench Type



Drills to center of 14" circle. Can be arranged in multiples. Sliding Head has a vertical adjustment of 7¼ inches, spindle travel of 3½ inches.

Made for either motor or pulley drive. Equipped throughout with high grade ball bearings.

Circular 2690 gives full details

Buffalo Forge Co.

161 Mortimer St., Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

BURKE

No. 222 Sensitive Bench Drill



Here is a bench drill that combines rapid production with extreme sensitivity on holes up to ¾". A marked absence of chatter and vibration at all speeds attests the care and workmanship of its construction, and a range of spindle speeds from 1150 to 2600 R.P.M. permits the performance of much diversified work. Motor is equipped with a two-step cone and a one-inch endless belt. When the problem of drilling small parts presents itself, drop us a card. We can help you

The Burke Machine Tool Co.

297 East 16th Street,

Conneaut, Ohio,

U. S. A.

TAPPING?

Try a "PROCUNIER". Blind holes can be tapped just as easily as through holes, and without danger of breakage.



Balanced Reverse— All Hardened Gears
Specially Treated Clutches
Fool-proof Safety Friction Device
Reliable Tap Holder

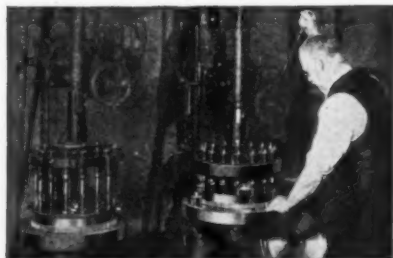
No. 1 Style A, $\frac{7}{32}$ in steel.....	\$28.00
No. 2 Style A, $\frac{1}{16}$ in steel.....	34.00
No. 3 Style A, $\frac{9}{16}$ in steel.....	40.00
No. 4 Style A, $\frac{1}{8}$ in steel.....	52.00

Don't hesitate to ask for a free trial.

*Catalogue 102-B gives complete details of "PROCUNIER"
 Safety Tapping and Quick Change Chucks, Stud
 Setters and Bench Tapping Machines.*

Procunier Safety Chuck Co.
 14 S. Clinton St., Chicago, Ill.

DORMAN 16-Spindle Drill Head



and
Tapper
 14-31-32"
 Centers

Drill Head has No. 1 Morse taper in spindles and ball thrust; Tapper has automatic reverse, 5/16-24 taps tapping $\frac{1}{8}$ " deep in tough cast iron. 500 pieces can be drilled and tapped and head changed in a few minutes without lost time for adjusting, and accuracy is always maintained. Housings of tough aluminum.

Send Blue Prints or Layout for Quotation

**JOHN H. DORMAN, 5148-51 Hudson Blvd. W.,
 WEST NEW YORK, N. J.**



Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders



*Send
for
Bulletins*

Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.



DETROIT

Semi-Automatic DRILLING MACHINE

Drills 900 to 1200 holes per hour

Unsurpassed for speed, accuracy
and low cost operation. Over 1800
in successful operation.

Capacity—No. 60 to $\frac{3}{4}$ -inch Drills.
Standard fixtures will handle round
or hexagon stock. Five spindles,
cam control.

*Send for Folder giving
Complete Details.*

Detroit Machine Tool Co.

5060 Woodward Ave.,

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BRIDGEBILT CHAIRS



Test This New Production **CHAIR** At Our Risk

Here's a chair sold strictly on its merits. You can't appreciate its splendid usefulness and low cost until you see, test and compare it in your own plant. Just try one for strength, comfort and the same general wear and tear uses you would expect of such a product. We stand or fall by your decision.

Send coupon TODAY. Mark it and mail direct. We ship sample at once. No obligation to buy. Do it NOW.

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616 N. LaSalle St., Chicago, Ill.
Eastern Office: 119 E. 27th St., New York City

FREE TRIAL AND CATALOG

Let me try a Production Chair
Graduated heights from 18-30" ☐

Let me try a Bridgebilt Stool
Height...ins. (18-24) (24-30) ☐



STANDARD Dial Indicator Excels in Service!

The patented "gear cover" of the STANDARD Dial Indicator gives the mechanism double protection from dust, grit and moisture—insuring *smooth action, accuracy and long life*. The large figures on the dial, free of shadows and with distinct graduations make easy reading.

Catalog and Price Lists of the entire STANDARD line gladly sent at your request.

STANDARD GAGE COMPANY, INC.
Poughkeepsie, N. Y.

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CLEVELAND

DAYTON

CHICAGO



Upright Dial Gauges
with mountings for
testing parts speedily.

B. C. Ames Co.
Waltham, Mass.
902 Stephenson Bldg., Detroit

Ames Gauges for accuracy

Micrometer Dial Gauges
in a wide variety of dial
markings to fit all re-
quirements.



FEDERAL Dial Indicator MODEL "30"

This Model is particularly adapted for extremely close work as it is graduated so that .0001" reads like .001" on the ordinary indicator. *A Few Federal Exclusive Features.* Jewel bearings, solid bronze alloy die cast case, with hyllo finish, stem cast integral with case eliminating absolutely all solder, stainless steel bushings in stem. The rack as well as all exposed parts are chromium plated assuring years of dependable service.

Send for our complete catalogue showing
over 45 different types of gauges.

Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.

The HANDNIB for Tool and Die Work

Cut out templates—
Cut out trial blanks—
Nibble sheet metal
into any irregular
shape.

The Handnib will
do the above in *one-
tenth* the usual time.

Write for a Folder!



National Machine Tool Co.
1536B Clark St., Racine, Wis.

ARMSTRONG
TRADE MARK BORN IN U.S.A. PAT. OFFICE
TOOL HOLDERS
In 96% of the world's Machine Shops



Save

All Forging

70% Grinding

90% High Speed
Steel

For
every
operation on

LATHE, PLANER,
SLOTTER, SHAPER,

Over 100 sizes and shapes—tool holders for all classes
of work, each equal to a dozen forged tools. Any
mechanic can make and re-sharpen his own bits from
stock shapes of High Speed Steel.

*Catalog B-27, 256 pages of fine machinist's
tools, sent upon request, Write today.*

ARMSTRONG BROS. TOOL CO.
308 N. Francisco Ave., CHICAGO, U. S. A.





10" SUPERIOR Type: "M"

*"If it's to be drilled:
drill it the "SUPERIOR" way"*

What Does It Mean To You ?

To know that your small drilling equipment is equipped thruout with hi-grade Bronze bushed bearings; thus assuring you of *un-interrupted* PRODUCTION which means greater profit.

May we send our catalog ?

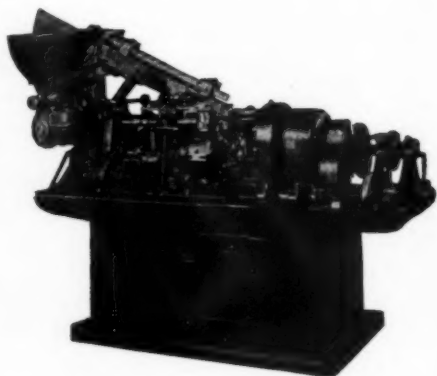
Superior Machine Tool Co.
Kokomo, INDIANA
SINCE 1902

**A thorough coverage is necessary
to maximum advertising results.
This is a truism.**

**For the greatest coverage of the
richest markets for machine tools
and shop equipment, concentrate
your advertising in**

**HITCHCOCK'S
MACHINE TOOL BLUE BOOK**

Combined Automatic Pointing and Threading Machines

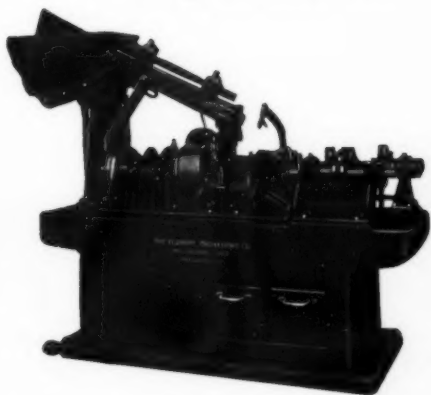


For Bolts and Cap Screws
Capacity— $\frac{3}{16}$ " x 1" Diameter
1" to 6" Long

Write for Full

THE ECONOMY ENGINEERING

Automatic Shaving Machines



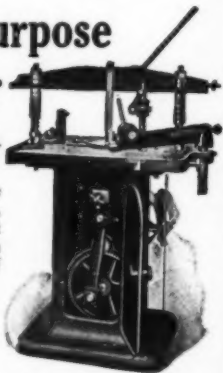
Shaves top and underneath
head of Cap Screws

Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

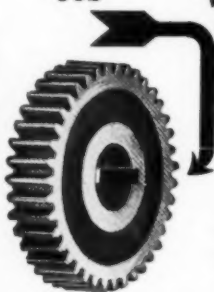
COMPANY, - Willoughby, Ohio

Davis All-Purpose Keyseater



From the largest, to the
smallest keyseating job,
the DAVIS can be set
up quickly for each
item of a run of
mixed work.

And a
Satisfactory
Job



The Cutter

In sizes from
1/16 to 1-inch

Cuts key-
ways in pul-
leys, gearblanks,
bell cranks, crank
handles, etc.; does
slotting & oil grooving.

Two sizes. Write for folder, with table of cutting time.

Davis Keyseater Company
255½ Mill Street, Rochester, N. Y., U. S. A.



Drilling Cost Cut 76%

A MIDWEST lamp manufacturer, using carbon drills, was confronted with the problem of reducing hole production cost and speeding up hole production.

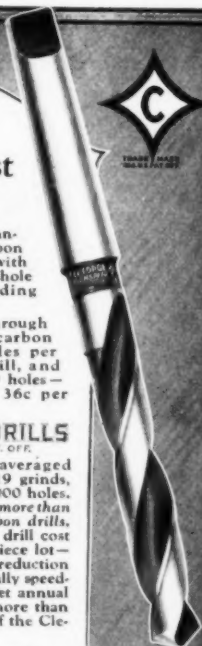
On a certain job, run through in 10,000-piece lots, carbon drills averaged 780 holes per grind, 24 grinds per drill, and total drill life of 20,000 holes—with direct drill cost of 36¢ per 10,000 piece lot.

CLE-Forge HIGH SPEED DRILLS

TRADE MARK REG. U.S. PAT. OFF.

were then tried. They averaged 10,000 holes per grind, 19 grinds, and total drill life of 200,000 holes. Although costing, per drill, more than twice as much as the carbon drills, Cle-Forge showed a direct drill cost of only 8½¢ per 10,000 piece lot—demonstrating a net cost reduction of over 76%, while materially speeding up production. The net annual saving was \$381.06—or more than 2½ times the actual cost of the Cle-Forge Drills used!

*This complete story is told
in Digest No. 59. Shall
we send you a copy—
without obligation?*



The **CLEVELAND**

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

**TWIST DRILL
COMPANY
CLEVELAND**
NEW YORK CHICAGO LONDON
SAN FRANCISCO

LEBLOND

BUILDERS OF
"MASTER TOOLS OF INDUSTRY"

**Obsolete Tools
Bring Profit Starvation**

*Get the facts
on*

LEBLOND
Modern Equipment

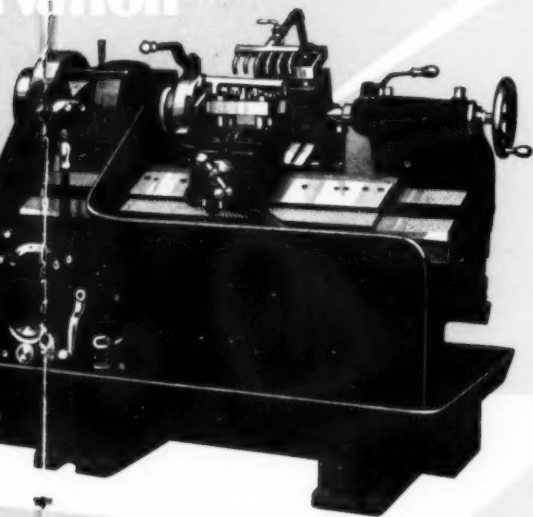
*The R.K. LeBlond
Machine Tool Co.*

*Edward & Madison Aves.
Cincinnati, Ohio*



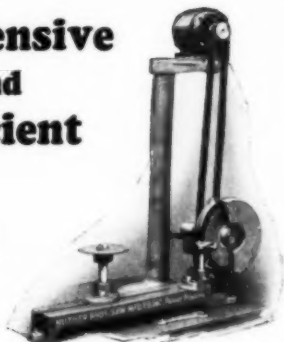
IND
"STRY"

vation



Inexpensive and Efficient

**Huthier Bros.
Metal Cutting
Saw
Sharpener**



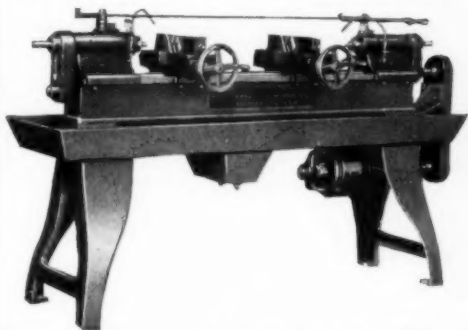
The saw grinding requirements of many plants do not warrant the expense of installing an automatic saw sharpener. These plants will find their sharpening requirements met by the Huthier No. 2 Metal Cutting Saw Sharpener.

An average operator can handle it as fast as an automatic machine. Designed for handling coarse and fine pitch metal cutting saws, inserted tooth and solid milling saws, automatic bevel and straight teeth. Its range, with or without index, is from 6" to 40" diameter. Furnished with or without motor drive.

Huthier Bros. Saw Mfg. Co., Inc.
ROCHESTER, N. Y.

SUNDSTRAND

Double End Centering Machine



For a Large Variety of Work

For centering both ends of a shaft simultaneously. Spindles operate together or independently. Left hand head is removable for long shafts.

Sundstrand Centering Machines are regularly furnished in a range of sizes with one or two spindle heads. Belt or motor drive. Also a complete line of Bench Centers. Special fixtures furnished when desired.

A surprisingly large variety of work can be accommodated on these machines.

Send for Bulletin No. 10H.

Sundstrand Machine Tool Co.

Lathes—Milling Machines—Centering Machines—Balancing Tools
2510 Eleventh St., Rockford, Ill., U. S. A.

The VIM Bench Machine



Type "C" for Screw Driving and Nut Setting

Operated by foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired. We manufacture five different types, for all purposes of screw driving and nut setting.

Send for circulars describing these tools

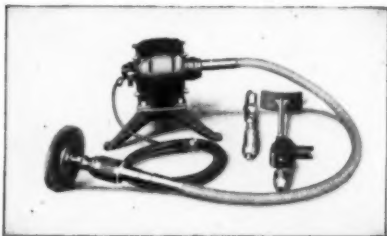
VIM ELECTRIC TOOL CO.

149 Broadway,

New York, N. Y.

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy
grinding or polishing job



Send for our latest bulletin

Stow Flexible Shaft Co.

3623-25 Brandywine St.,

Philadelphia, Pa.

The Best Since 1876

THE KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.



Built in sizes to meet all requirements.

Speeds up to 10,500.

For snagging, burring, lapping, buffing,
grinding, sanding, drilling,
wire-brushing, etc.

COMPLETE LINE OF ACCESSORIES

Rotary files, emery wheels, sanding
drums, wire brushes, etc.

Tell us your problem.

*Builders of the
Keller Automatic Die Cutting Machine.*

Keller Mech. Engineering Corp., **KME** 58A Washington St.
BROOKLYN, N. Y.

"Use the MALL Method"



for

**Cleaning
Scraping
Filing**

Sanding

Polishing

Grinding

Sawing

Finishing

**Mall Tools are
powerful tools**

Write for Catalog

Mall Tool Company, 7730 So. Chicago Ave.,
Chicago, Illinois

Victor A NEW DEGREE IN **EFFICIENCY!**



**Hack
Saws**

For years VICTOR HACK
SAW BLADES have been tried

and tested with other blades through the metal industry they have consistently proven their superior qualities.

Today they reach a new degree in efficiency and cutting consistency, which can result only from the finest production equipment, manufactured under time proven and superior methods.

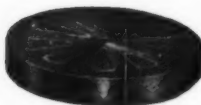
A trial will convince you

VICTOR SAW WORKS, Inc., Middletown, N. Y.

"D & W" Flat & Rotary **Magnetic Chucks**



**Have Proved Time
and Labor Savers**

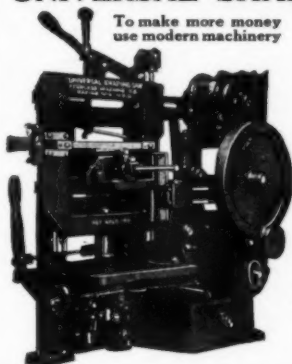


D. & W. Magnetic Chucks hold a great variety of iron and steel pieces for grinding, milling, planing and shaping operations. By the effective way they serve you, they soon pay for themselves. We specialize in problems dealing with the use of flat and rotary magnetic chucks. Let us investigate any question which is confronting you.

Special chucks to order. Folder and price list on request.

J. & H. Electric Co., 200 Richmond St.,
Providence, R. I.

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To make more money
use modern machinery

**Different Principles
Greater Efficiency
Give The Most Of—
Speed
Accuracy
Blade Economy**

SIZES:

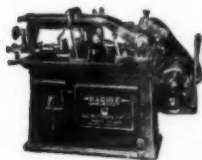
6'x16"--9'x19"--13'x13"

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HIGH SPEED HACK-SAWS
6'x16" 9'x19" 13'x16"
Sturdy--Efficient--Reliable**

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**Racine Shear Cut Production
Saw—Positive screw
feed, cutting time never
varies. Blade life is trebled.**

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HIGH-SPEED METAL CUTTING MACHINES



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HANDIEST RACKS
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Jan. 30, 1917



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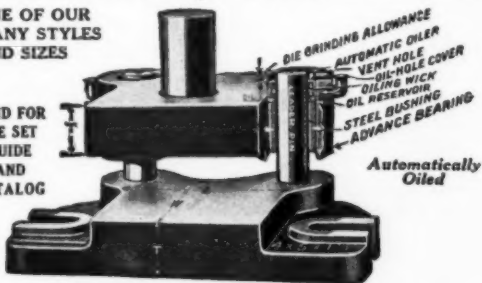
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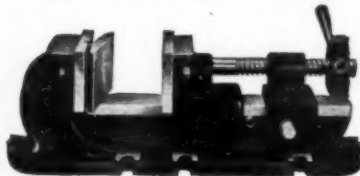
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With Automatic, Quick-Acting, Powerful Grip



***Holds
Irregular
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Firmly***

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

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With
Extra Lugs
for
Bolting Down

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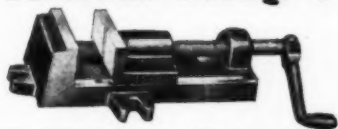
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LOW PRICE

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AMMCO

Price:

\$5.00

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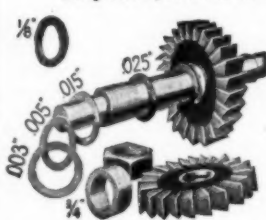
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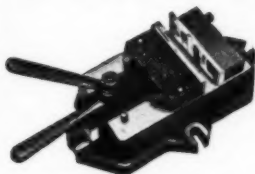
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Maximum opening 3½"
Weight 40 lbs.

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COMPENSATES for all irregularities in machine alignment. Reamer can float to one side, at the same time swing on an angle in any direction to align itself with the work.

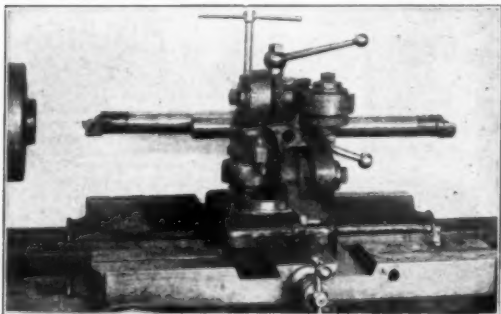
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Approx. shipping weight.....	45	90	150	350	650	
Code	Rend	Rid	Ris	Rib	Ben	

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Springfield
Straightening
Press—



Made in
3 Sizes

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In Shop
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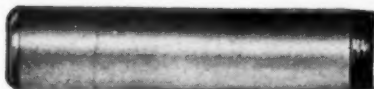
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Pedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating

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Scully-Jones & Co., 1901 So. Rockwell St.,
Chicago

Cutters, Milling

Read-Pratt Corp., Worcester, Mass.
Scully-Jones & Co., 1901 S. Rockwell St.,
Chicago

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Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening

Tickert-Shafer Co., Erie, Pa.

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bourne Ave., Chicago
Dany Machine Specialties, Inc., 2116 So.
62nd Ave., Chicago
John H. Dorman, West New York, N. J.

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Fassman Bros., 707 W. Washington, Chgo.

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Stevens Inc., John B., 27 Cleveland Place,
New York

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Chicago Ave., Chicago

Drill Racks

Peorless Machine Co., Racine, Wis.

Drilling Heads, Multiple

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Oesterlein Machine Co., Cincinnati, Ohio
United States Drill Head Co., Cincinnati

Drilling Machines, Automatic

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Bradford Machine Tool Co., Cincinnati, Ohio
Superior Machine Tool Co., Kokomo, Ind.

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Avey Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Superior Machine Tool Co., Kokomo, Ind.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio
Winterhoff Tool & Machine Co., Elkhart, Ind.

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National Elect. Prod. Co., 148 Baxter, N. Y.

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Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
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National Elect. Prod. Co., 148 Baxter, N. Y.

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Drees Machine Tool Co., Cincinnati, O.
Hammond Mfg. Co., Cleveland, Ohio.
Morris Machine Tool Co., Cincinnati, Ohio
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Taylor & Fenn Co., Hartford, Conn.

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Drilling Machines, Sensitive

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National Elect. Prod. Co., 148 Baxter, N.Y.
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Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

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Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
National Elect. Prod. Co., 148 Baxter, N.Y.
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Sigourney Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Superior Machine Tool Co., Kokomo, Ind.
Taylor & Fenn Co., Hartford, Conn.

Drilling Stands, Bench, Post and Radial

Hisey-Wolf Machine Co., Cincinnati, Ohio

Drills, Marble

Hisey-Wolf Machine Co., Cincinnati, Ohio

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand

Schwarzschild Stamp Co., Bridgeport, Conn.

Etching Machines, Electric

Brewster Co., Wm., Inc., 60 Church St.,
New York
Luma Electric Equipment Co., Toledo, Ohio.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Filing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.
Oliver Instrument Co., Adrian, Mich.
Wardwell Mfg. Co., Cleveland, O.

Filing and Sawing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery

Keller Mech. Eng. Corp., 65A Washington
St., Brooklyn, N. Y.
Mail Tool Co., 7730 S. Chicago Ave., Chicago

Forges

Buffalo Forge Co., Buffalo, N. Y.
Candey-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gages, Cylindrical and Thread

Federal Products Corp., Providence, R. I.

Gages, Dial

Ames Co., B. C., Waltham, Mass.
Federal Products Corp., Providence, R. I.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap

Standard Gage Co., Poughkeepsie, N. Y.

Gages, Special

Standard Gage Co., Poughkeepsie, N. Y.

Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gear Cutters

Triplex Machine Tool Corp., 60 Church St.,
New York

Gear Hobblers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St.,
New York

Gears

Boston Gear Works Sales Company, Norfolk
Dwms, Mass.
Chicago Stock Gear Works, 106 S. Jefferson,
Chicago
Foots Bros. Gear & Machine Co., Dept. 34,
111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone

Foots Bros. Gear & Machine Co., Dept. 34,
111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago

Grinding Machine Work, Disc

Sherman-Klove Co., 3533 W. 47th St., Chgo.

Grinding Machine All, Pneumatic Turbine

Onsrod Machine Works, Inc., 3910 Palmer
St., Chicago

Grinding Machines, Angle Plate

Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Lehmann Machine Co., St. Louis, Mo.
Pearless Surfacing Machine Co., Troy, N.Y.
Wall Sales Corp., 56 Warren St., New York

Grinding Machines, Bench

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Mchs., Combination Buffer

Hisey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Cutter, Reamer and Tool

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Oesterlein Machine Co., Cincinnati, Ohio
Oliver Instrument Co., Adrian, Mich.
Stevens Inc., John B., 57 Cleveland Place,
New York
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cylindrical

American Machine Tool Co., Hackettstown,
N. J.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Grinding Machines, Die
American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc
American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Gardner Machine Co., Beloit, Wis.
Hissey-Wolf Machine Co., Cincinnati, Ohio
Porter Cable Machine Co., Syracuse, N. Y.
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Drill
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External
Hissey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor
Hissey-Wolf Machine Co., Cincinnati, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Flexible Shaft
Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Grinding Machines, Hob
Scherr Co., Geo., 144 Liberty St., New York

Grinding Machines, Internal
Chicago Tool & Engineering Co., 8389 So. Chicago Ave., Chicago
Hissey-Wolf Machine Co., Cincinnati, Ohio
Mall Tool Co., 5389 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Onsrud Machine Works, Inc., 3910 Palmer St., Chicago
Palmer-Edwards Co., Flint, Mich.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric
Chicago Tool & Engineering Co., 8389 So. Chicago Ave., Chicago
Hissey-Wolf Machine Co., Cincinnati, Ohio
Keller Mch. Eng. Co., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7780 S. Chicago Ave., Chicago
National Machine Tool Co., Racine, Wis.
Porter-Cable Machine Co., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, Ohio
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5091 N. Lincoln St., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Tool Co., 148 Broadway, New York
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hissey-Wolf Machine Co., Cincinnati, Ohio
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Lehmann Machine Co., St. Louis, Mo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Surface
American Machine Tool Co., Hackettstown, N. J.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Illinois Machine & Mfg. Co., LaSalle, Ill.
Stevens Inc., John B., 27 Cleveland Place, New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool
Hissey-Wolf Machine Co., Cincinnati, Ohio
Oesterlein Machine Co., Cincinnati, Ohio
Standard Electrical Tool Co., Cincinnati, Ohio
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Tool Post
Hissey-Wolf Machine Co., Cincinnati, Ohio

Grinding Machines, Universal
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle
Hissey-Wolf Machine Co., Cincinnati, Ohio

Grinding Wheel Dressers
Hissey-Wolf Machine Co., Cincinnati, Ohio

Hack Saw Blades
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Fearless Machine Co., Racine, Wis.
Racine Tool & Machine Co., 1754 State Street, Racine, Wis.
Victor Saw Works, Inc., Middletown, N. Y.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Fearless Machine Co., Racine, Wis.
Racine Tool & Machine Co., 1754 State Street, Racine, Wis.

Hammers, Chipping and Calking
Canton Pneumatic Co., Canton, Ohio

Hob Grinders
Triplex Machine Tool Corp., 80 Church St., New York

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio

Hydraulic Machinery
Laurie Mfg. Co., 565 Washington, Chicago

Index Centers, Single and Multi Spdl.
Fay & Scott, Dexter, Maine
Stevens Inc., John B., 27 Cleveland Place, New York

Indicators, Dial
Federal Products Corp., Providence, R. I.
Standard Gage Co., Foughkeepsa, N. Y.

Jigs and Fixtures
John H. Dorman, West New York, N. J.
Hartford Special Mch. Co., Hartford, Conn.
LaPorte Machine & Tool Co., LaPorte, Ind.

Keyseating Machines
Baker Brothers, Inc., Toledo, Ohio.
Burr & Son, John T., Brooklyn, N. Y.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments
The Co-Operative Mch. Co., Cleveland, O.
Fay & Scott, Dexter, Maine
Reed-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathe Turrets
The Co-Operative Mch. Co., Cleveland, O.

Classified Finding Index

Lathes, Bench

Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Berteau Ave.,
Chicago

Lathes, Engine

American Tool Works Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Carroll & Jamison Mch. Tool Co., Batavia, O.
Chard Lathe Co., Newcastle, Ind.
Fay & Scott, Dexter, Maine
Hamilton Tool Co., Hamilton, O.
Hardinge Brothers, Inc., 1770 Berteau Ave.,
Chicago

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
McCabe Lathe & Machinery, Corp., J. J.
149 Broadway, New York

Monarch Machine Tool Co., Sidney, O.
Morris Machine Tool Co., Cincinnati, Ohio
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sebastian Lathe Co., Cincinnati, Ohio
Sidney Machine Tool Co., Sidney, Ohio
Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Cap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Rahn-Larson Co., Cincinnati, O.

Lathes, Gap

Carroll Mch. Tool Co., A. V., Cincinnati, O.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Hand

Stevens Inc., John B., 27 Cleveland Place,
New York

Lathes, Hydraulic Automatic

Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Precision

Bradford Machine Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.

Lathes, Short Bed

Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathes, Tool Room

Bradford Machine Tool Co., Cincinnati, Ohio
Lehmann Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, Ohio
Reed-Prentice Corp., Worcester, Mass.

Lathes, Turret

Bradford Machine Tool Co., Cincinnati, O.
Chard Lathe Co., Newcastle, Ind.
Lehman Machine Co., St. Louis, Mo.
Monarch Machine Tool Co., Sidney, O.

Lubricator, Automatic

Norgren Co., Carl, A., Denver, Colo.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Millers, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Stevens Inc., John B., 27 Cleveland Place,
New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

The Co-Operative Mch. Co., Cleveland, O.

Milling Machine Work

Sherman-Klovs Co., 3653 W. 47th St., Chgo.

Milling Machines, Automatic

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frew Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Frew Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Mchs., Oil Grooves for Half Bearings

Lehmann Machine Co., St. Louis, Mo.

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Rotary

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Vertical

Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, Ohio
Reed-Prentice Corp., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Nut Setters, Electric
Hisey-Wolf Machine Co., Cincinnati, Ohio
Vim Tool Co., 149 Broadway, New York

Oil Cups
Tucker, W. W. & C. F., Hartford, Conn.

Pins, Leader And Dowel
Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago
Daily Machine Specialties, Inc., 2116 S. 52nd Ave., Chicago

Pipe Bending Machines
Padrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable
Padrick Tool & Machine Co., Philadelphia

Planing Machines
Cincinnati Planer Co., Cincinnati, Ohio
Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines
Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hisey-Wolf Machine Co., Cincinnati, O.
Mail Tool Co., 7730 S. Chicago Ave., Chicago
New Britain Machine Co., New Britain, Conn.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., 565 Washington, Chicago
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago
Wilson, R. K., Buffalo, N. Y.

Presses, Broaching
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Drawing
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Flanging
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Foot
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Presses, Forcing
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Forming
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Power
Hendley & Whittemore Co., Beloit, Wis.
Lourie Mfg. Co., 565 Washington, Chicago
Rockford Iron Works, Rockford, Ill.

Presses, Punch
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.

Presses, Screw
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Presses, Wheel
Lourie Mfg. Co., 565 Washington, Chicago

Profiling Machines
Frew Machine Co., Philadelphia, Pa.
Oliver Instrument Co., Adrian, Mich.

Pulley Machinery
Avery Drilling Machine Co., Cincinnati.

Pulleys, Iron, Solid and Split
Conway Clutch Co., Cincinnati, O.
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Pumps, Coolant
Fulfilo Specialties Co., Blanchester, O.

Pumps, Hydraulic
Lourie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant
Ruthman Machinery Co., Cincinnati, O.

Punch Press Feeds
Rockford Iron Works, Rockford, Ill.

Punch Press Work
Sherman-Klove Co., 3533 W. 47th St., Chgo.

Punch, Shear and Bender, Hand
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Buffalo Forge Co., Buffalo, N. Y.

Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.

Punches and Shears
Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Racks, Bar Stock
New Britain Machine Co., New Britain, Conn.
Yoke Supply Co., Wm. S., Canton, O.

Reamer Holders
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reamers, Adjustable
Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Portable Electric
Hisey-Wolf Machine Co., Cincinnati, Ohio

Reels, Extension
Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment
Linley Bros. Co., Bridgeport, Conn.

Riveting Machines
Buffalo Forge Co., Buffalo, N. Y.
Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. F., Hartford, Conn.

Rad Cutters
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed
Stevens Inc., John B., 27 Cleveland Place, New York

Classified Finding Index

Saw Sharpening Machines

Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Reed-Prentice Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Heay-Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic

Raynolds Machine Co., Mansfield, Ohio

Screw Machine Products

National Acme Co., Cleveland, Ohio.
Sherman-Klove Co., 3633 W. 47th St., Chgo.

Screw Machines, Automatic

National Acme Co., Cleveland, Ohio.
New Britain Mchs. Co., New Britain, Conn.
Townsend Mfg. Co., H. P., Hartford, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Keller Mech. Eng. Corp., 68A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 6001 N. Lincoln St., Chgo.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Bloom Mfg. Co. 341 N. Francisco Av., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Bristol, Wis.
Lewthwaite Machine Co., E. H., 311 E. 47th St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
Whitney Metal Tool Co., Rockford, Ill.

Shears, Power

Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Bristol, Wis.

Slotting Machines, Screw Head

Stevens Inc., John B., 27 Cleveland Place, New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
Foots Bros. Gear & Machine Co., Dept. 34
111 North Canal St., Chicago
Illinois Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.
Reed-Prentice Corp., Worcester, Mass.
Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and Herringbone

Foots Bros. Gear & Machine Co., Dept. 34
111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Ohio Gear Co., Cleveland, Ohio.

Spot Welding

Sherman-Klove Co., 3633 W. 47th St., Chgo.

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Sprockets

Foots Bros. Gear & Machine Co., Dept. 34
111 North Canal St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Proconier Safety Chuck Co., 18 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Proconier Safety Chuck Co., 18 S. Clinton St., Chicago
Scully-Jones & Co., 1901 S. Rockwell St., Chicago, Ill.

Tapping Machines and Attachments

Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Burke Machine Tool Co., Conneaut, Ohio
John H. Dorman, West New York, N. J.
Ettco Tube & Tool Co., Inc., 600 Johnson Ave., Brooklyn, N. Y.
Frew Machine Co., Philadelphia, Pa.
Hammond Mfg. Co., Cleveland, Ohio
Leland Gifford Co., Worcester, Mass.
Proconier Safety Chuck Co., 18 S. Clinton St., Chicago
Rickert-Shafer Co., Erie, Pa.
Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colven, J. M., Yonkers, N. Y.

Thread Millers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St., New York

Threading Machines

Rickert-Shafer Co., Erie, Pa.

Threading Machines, Automatic, Stud

Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Classified Finding Index

Tool Racks

Chicago Wire Chair Co., 819 N. La Salle St., Chicago

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts

Conradson, C. M., Green Bay, Wis.
Fay & Scott, Dexter, Maine

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Norfolk Downs, Mass.

Used and Rebuilt Machinery

American Tool Works Co., Cincinnati, Ohio
Armstrong & Bros. Co., N. S., Atlanta, Ga.
Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
Bernstein & Co., Geo. M., 221 N. Elizabeth St., Chicago

Bleser Mfg. Co., J., Springfield, Ill.
Brandt Machinery Co., Pittsburgh, Pa.
Broadway Machinery Co., 211 Centre St., New York, N. Y.

Brotherhood & Son, Percy M., 35 Church St., New York, N. Y.

Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Carlson Machinery Co., Davenport, Iowa

Central States Machinery Co., 134 S. Clinton St., Chicago

Cincinnati Mch. & Supply Co., Cincinnati, O.
Cisco Machine Tool Co., Cincinnati, Ohio
Clinton Mch. Co., 128 S. Clinton St., Chgo.

Co-Operative Mch. Co., Cleveland, Ohio
Davis Machinery Exchange, Toledo, O.
Detroit Machinery Exchange, Detroit, Mich.

Donahue Steel Products Co., 74th and Ashland Ave., Chicago
Eastern Machinery Co., Cincinnati, O.

Emerman & Co., Louis E., 1761 Eison Ave., Chicago
Empire Machinery Exchange Co., Inc., Cleveland, Ohio

Easley Machinery Co., E. L., 551 Washington Blvd., Chicago

Foster Machinery Co., Cleveland, O.
Harris Bros. Co., 35th & Iron Sts., Chicago
Hill, Clarke & Co., 645 W. Washington Blvd., Chicago

Hyman & Sons, Joseph, Philadelphia
Indianapolis Mch. & Supply Co., Indianapolis, Ind.

International Mch. Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, O.
Kinsley Co., E. A., Cincinnati, O.
Klauber Mch. Co., E. L., St. Louis.

Little Co., W. P., Cleveland, O.
Lucas & Son, Inc., J. L., Bridgeport, Conn.
McClabe Lathe & Machinery Corp., J. J., 149 Broadway, New York

McDonald Machinery Co., St. Louis
Manning, Maxwell & Moore, Inc., 27 No. Jefferson, Chicago

Marr-Galbreath Mch. Co., Pittsburgh, Pa.

Used and Rebuilt Machinery—Cont.

Midland Eqmnt. Co., 400 S. Clinton, Chicago
Mid-West Machine Tool & Supply Company, Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.
Molitor Mch. Co., Chas., 118 S. Clinton St., Chicago

Moray and Co., Inc., 406 Broome St., N. Y.
Morris Machine Tool Co., Cincinnati, Ohio
Morton Mch. Co., H. L., Cleveland, Ohio

Metch & Merryweather Machinery Co., Cleveland, O.

Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch. Co., Columbus, O.
Palmer-Edwards Co., Flint, Mich.

Pandle Machinery Co., Cincinnati, O.
Reed-Pratt Corp., Worcester, Mass.

Reeve-Fritts Co., 558 W. Washington, Chgo.
Rentschler & Co., J. P., 607 W. Washington Blvd., Chicago

Reliance Mch. Sales Co., Pittsburgh, Pa.
Riverside Machinery Depot, Detroit, Mich.

Rosenfeld Mch. Co., 342 W. Lake St., Chgo.
Russell Machine Co., Pittsburgh, Pa.

Saltzman, H. L., 524 W. Van Huren, Chgo.
Scott-Banbach Mch. Co., 130 S. Clinton, Chicago

Selfreest-Kistad Machinery Co., Dayton, O.
Stockman, John A., 240 W. 25th St., N. Y.

Stoehr Machinery Co., A. M., 418 Mid-City Bank Bldg., Chicago

Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland

Sun Machinery Co., Newark, N. J.
Syracuse Supply Co., Syracuse, N. Y.

Taylor-Hall Welding Corp., Worcester, Mass.
Toledo Machinery Exchange, Toledo, Ohio

Tubor-Velick & Co., 630 W. Lake St., Chgo.
United Mch. & Supply Co., St. Louis

Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson St., Chicago
Wiggleworth Machinery Co., Boston, Mass.

Winterer, Herman L., Philadelphia

Vices, Drilling Machine

Armstrong-Bloom Mfg. Co., 841 N. Francisco Av., Chicago

Armstrong Bros. Tool Co., 808 N. Francisco Av., Chicago

Barker & Co., Wm., Covington, Ky.
Martin Tool & Die Works, J. E., Springfield, O.

Passman Bros., 707 W. Washington, Chgo.
Plunket Mch. Co., J. E., 215 N. Ada, Chgo.

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Western Tool & Mfg. Co., Springfield, O.

Vices, Milling Machine

Hartford Special Mch. Co., Hartford, Conn.
Plunket Mch. Co., J. E., 215 N. Ada, Chgo.

Sheldon Machine Co., 3253 Cottage Grove Ave., Chicago

Vices, Shaper

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
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Wood Working Machinery

Frew Machine Co., Philadelphia, Pa.
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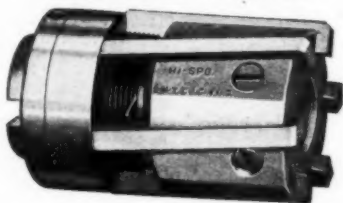
New Britain Machine Co., New Britain, Conn.
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"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

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Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

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Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Taylor-Winfield 2 k. w.
Taylor-Winfield 7½ k. w. 10" horns.
Federal 10 k. w. 12" adj. horns.
Toledo 20 k. w. 30" horns.
National 30 k. w. 25" horns.
National 35 k. w. 25" horns.

Winfield B50SA, cap. ½"
Thomson 2A auto., cap. ½"
Thomson 7A auto., cap. ½"
Winfield B-103, cap. ½"
Toledo No. 3, cap. ½"
Toledo 8B, cap. ½"

New machine guarantee with every welder.

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Automatic, 1½" Gridley multiple spindle, Model "G", m. d., lot of equipment.
Gear hobber, 24"x78" Westinghouse, motor drive.
Lathe, 3x36 Jones & Lamson, lot of collets.
Lathes, 17" LeBlond manufacturing, g. c. g., pan beds, (4).
Motor, 75 h. p., 470 r. p. m., SK 180 Westinghouse.
Motor, 7½ h. p., 1200 r. p. m., type KT General Electric, auto. comp.
Shear, 10' Niagara gap, motor drive, 10 gauge.

FOR SALE BY

General Machinery Corporation,

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Drill, Sibley 24" sl. hd., b. g., p. f.
Drill, Myers 14" with rd. & sq. tables.
Gas forge, American No. 2.
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7"x32", ½" collet capacity.
Miller, Burke No. 2 bench, p. f.

Miller, Becker No. 7-H, Lincoln
type, 4-step cone.
Oven furnace, American No. 16.
Press, Cons. No. 3, flywh., 2" stroke.
Shear, Bliss No. 105 rotary.
Turret lathe, Warner & Swasey 14".

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16" Walcott.
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16" Whipp.

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MILLING MACHINES
Pratt & Whitney.

No. 100 Crosby.
Rockford bench.

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Air compressors.
Drill press.
Electric motors.
Grinders.
Lathes.

Motor, 150 h. p. slip ring, 720 r. p.
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Roll, 7' power.
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The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Cold saw, No. 4 Nutter & Barnes.
Die filer, No. 3 Barry.
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Drill, 4-spindle Fox, 3" cap.
Drill, 6-spindle Henry & W. h. s.
Drill, 36" Snyder s. h., b. g., p. f.
Gear shaper, 5" x 36" Fellows.
Grinder, Bryant No. 6A chucking.
Grinder, 26" Buffalo knife.
Grinder, disc, 20" Ransom.
Hammer, 100 lb. Beaudry.
Lathe, 36/48x10' Bradford.

Lathe, 9x20" Porter-Cable prod.
Lathe, 12"x5' Pratt & Whitney.
Lathe, 20" Davis chucking.
Lathe, 34"x32' Bradford d. b. g.
Motor, Wagner 15 h. p. 220 a. c.
Motor, Wagner 40 h. p. 220 a. c.
Pipe machine, No. 64 Merrell.
Planer, 24"x24"x6' American.
Screw machine, No. 1 B. & S. auto.
Shear, No. 14 Pettingell rotary.
Turret lathe, 24"x26" Pratt & Whitney
Welder, spot, Taylor 3" cap.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

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Automatic, 3" Gridley, cone drive.
Automatics, Nos. 52 & 53 Acme.
Bolt cutters, 3", 4", 1-1/2" single head.
Boring mill, D. & H., 3 1/2" bar.
Boring mill, 25" Sellers, 2 heads, full motor drive.
Boring mill, 34" Colburn.
Boring mill, 36" Niles 2 heads.
Boring mill, 51" Bullard, 2 heads.
Bulldozers, No. 27 Williams-White, motor drive, A 1 condition.
Broach, No. 3 LaPointe.
Car wheel borer, 42" Ridgeway.
Centering mche., Cadillac dbl. end.
Chain hoists, new, 1 ton \$40.
Chain hoists, new, 1 ton \$50.
Drills, 10"-12" bench type, m.d., new.
Drills, 15, 20 21" floor type, b. d. or m. d.
Drills, 20" plain feed, (4).
Drills, 20" and 21" back geared, new.
Drills, 22", 24", 28" sliding head.
Drill, 36" T. & F. sensitive radial.
Drill, Model "F" Turner turret.
Drill, P. & W. multiple, 12-1" spdl.
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 4 Colburn mfg., 4-spdl.
Gear cutter, No. 1 Bilton.
Grinder, 7 1/2 h. p. Ransom, 220-3-60.
Grinder, Oliver drill, 3" cap., m. d.
Grinder, 12"x24" Modern plain.
Grinder, No. 1 Norton univ. cutter.
Grinder, No. 1 Univ. tool & cutter.
Grinder, No. 24 Bath universal.
Grinder, No. 16 Besly disc.
Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (4).
Hammer, No. 1AA High Speed, m.d.
Hammers, 60 lb. Bradley helve.
Hammers, 6000 lb. N.B.P. steam, (2).
Hoists, electric, 1 & 2 ton, d.c. mtrs.
Lathe, 14"x6" Rockford q.c.g.d. b.g.
Lathe, 16"x6" Blount patternmakers.
Lathe, 18"x6" Springfield brass.
Lathe, 12"x10" Davis tool rm., q.c.g.

Lathe, 14"-28" Fay & Scott gap.
Lathe, 17"-37"x8" Fay & Scott gap.
Lathe, 18"x10' W.-B., g. h., s. p. d.
Lathe, 27"x18' Reed, bargain.
Lathe, 48"x19' 8" Betts-Bridgeford.
Lathe, 36"x20" Bradford tr. grd.
Lathe, 30"x16' L. & S., q. c. g.
Lathe, 36"x25' W. P. Davis m. d.
Lathe, 36"x34' W. P. Davis, m. d.
Lathe, 3"x36" J. & L. flat turret.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Lathes, No. 4 W. & S. tur., g.f.h. (4).
Millers, No. 0 Cincinnati plain, (2).
Millers, No. 1 Cleveland plain, (2).
Miller, No. 2A Milwaukee plain.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, No. 4 Hendey plain, s. p. d.
Miller, 4 1/2"x12" P. & W. thread.
Pipe mche., E., C. & B. 2 1/2" to 8".
Pipe machine, Merrill, 2 1/2" to 12".
Pipe machine, new 2-P. 2" Williams.
Planer, 22"x22"x50" New Haven lhd.
Planer, 24"x24"x8" Powell, 1 head.
Planer, 30"x30"x8" Powell, 1 head.
Planer, 33"x33"x12" Cincinnati, 2 hds.
Planer, 36"x36"x12" Cinti. 2 heads.
Press, No. 3 Adriance o.b.i., 3 1/2" str.
Press, Ferracute DD2, o. b. i., cam.
Presses, 3P Ferracute (2).
Presses, Nos. 19, 20 & 21 Bliss, new.
Presses, Nos. 3, 4, 5 and 6 Consolidated, new.
Presses, No. 20 Bliss, 3" stroke.
Punch, Wickes, 48" thrt., cap. 1 1/2"x1".
Radial drill, 4' Fosdick s. p. d., g. b.
Radial drill, 4' American cone drive.
Radial drill, 5' Western s. p. d., g. b.
Seamers, Bliss, Leffler & Max Ams.
Shapers, 16", 24" Gould & E., b. d.
Shapers, 24" & 36" G. & E., m.d., b.g.
Shear, 10"x14 ga. Bertsch, b. d.
Shear, No. 0 H. & J. gullotine, b.d.
Shear, No. 103 Bliss circle.

Our warehouse is full of bargains. What have you for sale?

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West Penn Machinery Company

1206 House Building,

Pittsburgh, Pa.

Air comp. 4"x4" Union, 16 cu. ft.
Air comp., 6"x6" Curtis, 49 c. f.
Air comp., 8"x8" Bury "BB", 79 c.f.
Air comp., 9"x8" Ing.-R. type ER-1.
Air comp. 14"x12" Chicago, 529 c. f.
Bolt cutters, 1 1/2" Landis, dbl. head.
Bolt cutters, 1 1/2" Landis, 3hd., m. d.
Boring mill, horiz. 4-spd., Newton.
Boring mill, horiz. 3 1/2" bar, Rochester.
Boring mill, horiz. 6 1/2" bar Niles.
Brake, 6"x16 ga. Robinson.
Brake, 48"x3/16" Dreis & Krump.
Brake, 7"x3/16" Dreis & Krump.
Brake, press type. 10" 6" Ohl, 5/16".
Bulldozers, Nos. 2 and 28 W. & W.
Cranes, elec. 20-ton Morgan, 42".
Crane, elec. 5-ton Case, 55' span.
Dieling mches., 25 & 50 ton H. & W.
Drill, mult. spd., No. 30 Natco m. d.
Drills, 14" to 35".
Drill, No. 3 Colburn.
Drill, radial, 2 1/2" Fossdick.
Drill, radial, 5" Prentice, b. d.
Drill, radial, 6" Prentice, s. p. d.
Drill, radial, 10" Bausch, m. d.
Flanger, McCabe, 1/2" capacity.
Gear cutter, 84" Cincinnati, m. d.
Gear hobber, 78" S. & S. m. d.
Gear planer, 24 & 48" Gleason, bevel.
Grinder, radial, 14", 220 v. 3-60.
Grinder, 16"x72" Landis crankshaft.
Grinder, plain, 12"x72" Norton.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, tool, No. 2 Walker.
Hammer, blacksmith, power, 35-lbs.
Hammer, 65-lb. Champion, upright.
Hammer, 90-lb. Bradley, cush. helve.
Hammers, Nos. 3-B, 4-B, 4-N Nazel.
Hammers, steam, 600 lb. to 6000 lb.
Keyseater, No. 2 Mitts & Merrill.
Lathes, 12" to 60".
Lathe, 16"x8" Hendey.
Lathe, 16"x6" LeBlond, q. c. g.
Lathe, 36"x30" L. & S. grd. hd., m. d.
Lathe, Lo-Sw., 3 1/2"x60" Fitchburg.
Lathe, brass, 18"x6" Fox.
Lathe, roll, 50" United, m. d.
Lathe, turret, 3"x36" J. & L.
Lathe, turret, No. 3-A W. & S.
Lathe, turret, No. 6 W. & S.
Lathe, turret, 24" Steinle, 6 1/2" hole.
Lathe, turret, No. 4 Foster.
Lathe, turret, No. 8 W. & S.
Locomotive, gas, Adamson, std. ga.
Magnet, 36", 220 v., d. c.
Miller, plain, No. 2-Y Brown & S.
Miller, slab, Newton, C-37.
Miller, slab, 24"x24"x8", 2 heads.
Miller, univ. No. 2 Kempsmith.
Miller, univ., No. 4 B. & S. 12" d.h.
Pipe mche., 3" Jarecki, dies, b. d.
Pipe machine, 8" Williams, m. d.
Planer, 56"x56"x16" Cin. rev. m. d.

Planer, 96"x96"x18" Ridgway, 4 hds.
Planer, plate, 30" N.-B.-P.
Planer, rotary, 48" Niles, m. d.
Press, arbor, No. 7 Greenerd.
Press, hyd., 50-ton Lourie.
Press, geared, No. 34 Toledo.
Press, No. 37 1/2 Bliss, s. s., 6" stroke.
Press, No. 78 1/2 Bliss, t. r. 12" stroke.
Press, 610-F Niagara, 64"x78", d. c.
Press, 36" Toledo, dbl. crk. 2" str.
Press, No. 94-P Toledo, 42"x196".
Press, wheel, 150-ton Caldwell.
Press, wheel, 400-ton Niles.
Punch, beam, 24" Cleveland.
Punch, hor., Cleveland, 1" thru 1".
Punch & sh., 30" Rock-River 1/2"-1".
Punch & sh., "EF" Cleve. 24" arch jaw.
Punch, No. 1 L. & A. 30" thr., 14"-1".
Riveter, Hanna, 24", 70-ton.
Riveter, stake, L. & A. 5/16".
Riveting hammer, 1/2" high speed.
Rivet spinner, 1/2" Grant, 6" throat.
Rolls, angle bend, 2"x2"x1/2" Bertsch.
Rolls, bending, 42"x14 ga. Bertsch.
Rolls, bending, 54"x1/2" Cincinnati.
Rolls, bending, 10"x1/2" Cleveland.
Rolls, bending, 12"x1/2" H. & J.
Rolls, bending, 32"x1/2" Niles.
Saw, metal band, 6" Millband.
Saw, metal band, 26" Crescent.
Saw, frict. Model 1-A Hunter, 24".
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, cold, 48" Newton.
Saw, hot, 54" Mesta sliding frame.
Seamer, No. 308 Toledo.
Shaper, 16", 20" & 24" Gould & E.
Shaper, 24" Potter & J. universal.
Shear, angle, Cleveland 6"x6"x1/2".
Shear, alligator, Canton, 1 1/2".
Shear, alligator, No. 5 Canton, 3" sq.
Shear, alli., No. 5 Carlin, 4" sq. m. d.
Shear, alligator, United 6"x6".
Shear, bevel, Lennox 1/2".
Shear, circle, No. 110 1/2 Bliss.
Shear, gang splitter, 225-A, 36" Bliss.
Shear, 20"x16" ga. Bliss power.
Shear, 36"x16 ga. Niagara, b. d.
Shear, 96"x1/2" Pexto, m. d.
Shear, 12"x14 ga. Peerless, 95¢ new.
Shear, plate, 10"x1/2" H. & J. No. 4.
Shear, plate, United, 156"x1/2".
Shear, rotary, No. 6 Quickwork.
Straightening rolls, Brightman 1"-4".
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, Nat. 60"x14 ga. 17 rolls.
Straightener, H. & J. 48"x1/2" 8 rolls.
Straightener, Phila. 6"x1/2" 7-rolls.
Straightener, H. & J. 7"x1/2" 6 rolls.
Straightener, beam, No. 4 H. & J. m. d.
Swaging machine, No. 3 Langelier.
Swaging machine, No. 5 Langelier.
Testing, spring, Olsen, 50,000 lbs.
Upsetters, 1" to 5".
Welder, spot, Taylor, 5/32".

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FOR SALE BY

American Spiral Spring & Mfg. Company

56th St. and A. V. R. R., Pittsburgh, Pa.

CENTRIFUGAL COMPRESSOR.

One No. 140 General Electric centrifugal compressor, complete with 10 h. p. motor, 220 volt, a. c., 3 phase, 60 cycle, shown in General Electric Bulletin 48609 and Instruction Book 88602-A.

FOR SALE BY

J. Bleser Mfg. Co.,

16th & Madison Sts., Springfield, Illinois.

Grinder, Micro cylinder.
Grinders, Landis Nos. 1½ & 2 univ.
Lathe, Lodge & S. 36"x16", q. c.
Lathe, Prentiss 25"x16", s. c. g.
Lathe, Greaves-K., 16"x8", q. c. g.

Pipe machines, 2", 4", 6" & 8".
Miller, Transit heavy duty.
Millers, No. 3 Burke, Rockford.
Screw Machine, No. 4 Warner & S.
Shapers, Smith & Mills, 16", 12".

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

LATHES.

14"x10' Lodge & Shipley.
16"x 8' Lodge & Shipley.
16"x 8' American q. c. g.
24"x10' LeBlond.
24"x12' Boye & Emmes q. c. g.

28"x16' Lodge & Shipley, q. c. g.
30"x13' H. S. & G.
32"x14' American q. c. g.
36"x10' Greaves-Klusman.
40"x20' Wickes q. c. g., taper att.

MILLERS.

No. 4-B Brown & Sharpe sgl. pul.
No. 5-B Brown & Sharpe sgl. pul.
No. 4 Brown & Sharpe universal,
cone drive.

No. 33 Kempsmith 60" feed.
No. 3 Rockford hand.
Hendey Lincoln.
No. 2 LeBlond universal.

SHAPERS AND PLANERS.

12" G. & E. old style shaper.
32" Cincinnati shaper.

20" Walcott shaper, back geared.
42"x42"x26" Wheeler planer.

GEAR CUTTERS.

26" Brown & Sharpe.
30" Whiton spur and bevel.

36" Cincinnati spur.
42" Cincinnati spur.

DRILLS.

22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.
3-spindle Avey bench (2).
2-spindle Allen.

3-spindle Avey.
4-spindle Kern.
3' arm Drees radial.
4' arm Bickford.

PRESSES.

No. 1½ Bliss toggle press.
No. 3½ Bliss toggle press.
No. 25 Toledo double acting cam
drawing, geared.

No. 1½ Bliss toggle press.
No. 24 Toledo double acting cam
drawing, fly wheel.

SCREW AND TURRET MACHINES.

No. 6-A Potter & Johnston (3).
No. 2 Warner & Swasey hollow hex.
No. 2 Warner & Swasey screw mche.
6 Woods turret lathes, Nos. 2, 3 & 4.

No. 6 Warner & Swasey.
3"x36" Jones & Lamson.
No. 1 Foster hand screw machine.

PIPE AND BOLT THREADING MACHINES.

3" Bignall & Keeler pipe machine.
6" Jarecki pipe machine.
6" Bignall & Keeler pipe machine.

8" Williams pipe machine.
14" Standard bolt threader.
3" Acme bolt threader.

BORING MILLS.

34" Gisholt turret head, motor dr.
10" Niles vertical, 2 heads.
42" Niles, 2 heads.
54" Niles, 2 swivel heads.

60" Morton Poole, 2 swivel heads.
No. 1 P. & H. boring and drilling
machine.

USED AND REBUILT MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

- | | |
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| No. 2 Kempsmith Maximiller univ. | No. 3 Becker-Brainard, universal. |
| No. 3B Milwaukee plain, dbl. arm. | No. 2 Oesterlein plain. |
| No. 3 Hendey plain. | No. 4 Fox miller, single pulley. |
| No. 3 Rockford h. p. plain, s. p. | 48" Niles double head boring mill. |
| No. 3 Brown & Sharpe plain, s. p. | 24" Binnse horizontal boring mill. |
| No. 2 Rockford & B. & S. plain. | Large variety hand millers. |

LATHES.

- | | |
|--------------------------------------|---------------------------------------|
| 26"x13' Wickes, semi-quick chg. gr. | 18"x6' Prentice, geared head. |
| 24"x12' Bradford q. c. g. | 15"x6' Reed-Prentice taper, collets. |
| 20"x10' 9" Cisco q. c. g., taper. | 16"x6' Chard quick change gear. |
| 18"x10' Sidney, q. c. g. | 14"x6' Rockford, q. c., draw, collet. |
| 18"x 8' Greaves-Klusman q. c. g. | 14"x 6' Bradford q. c. g. |
| 16"x 8' Cincinnati, q. c. g., taper. | 20"x10' Hendey, taper, draw collets. |
| 18"x8' Sidney quick change gear. | 14"x6'-12"x6' Hendeys, taper, collets |

GRINDERS.

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| No. 2 Norton universal (2). | 4"x12" Norton self-contained. |
| No. 13 Brown & Sharpe universal | 10"x16" Sterling universal. |
| Nos. 1 and 3 Brown & Sharpe univ. | No. 6 Heald internal. |
| 7"x18" Walker universal. | Bryant internal chucking. |
| No. 3 Wilmarth & Morman surface. | No. 3 E Van Norman external. |
| Nos. 14 and 16 Brown & Sharpe cyl. | No. 3 J Van Norman internal. |

GEAR CUTTERS.

- | | |
|-------------------------------------|------------------------------------|
| 6"x22" Fellows gear threader, m. d. | 5" Cataract auto. gear and pinion. |
| No. 1 Schuchardt & S. gear hobber. | 4" Standard automatic. |
| Brown & Sharpe No. 13 gear cutter. | 4" Waltham auto. gear cutters (4). |

RADIALS AND DRILLS.

- | | |
|----------------------------------|-----------------------------------|
| 6' American triple purpose. | 2-spindle Sipp. |
| 6' American triple geared. | 4-spindle Aveys, Leland-Gifford. |
| 4' American triple geared. | Henry & Wright high speed, b. b. |
| 4' Fosdick. | 6-spindle 20" Barnes, power feed. |
| 6' Prentiss Bros. | 28" Snyder sliding head. |
| 5' Reed-Prentice. | 24" Aurora sliding head. |
| 3' Bickford, all gear, box feed. | 20" and 24" Barnes camel back. |

PRESSES AND SHEARS.

- | | |
|--------------------------------|-------------------------------------|
| 8' Toledo square shear, 3/16". | Smaller shears and brakes. |
| 52"x16" gap square shear. | No. DG 54 Ferracute dbl. act. draw. |
| 1500 lb. W. & W. drop hammers. | No. 15 Toledo 20" throat. |

Large variety and sizes of rotary shears, beadars, etc.

SHAPERS AND PLANERS.

- | | |
|-----------------------------------|--------------------------------------|
| 24" Milwaukee geared, crank. | 16" Rockford geared, crank. |
| 24" Cincinnati geared crank. | 15" Hendey, tight & loose pulley. |
| 16" Steptoe crank. | 16" Columbia, geared crank agl. pul. |
| 16" American geared, crank. | 20" Rockford back gear. |
| 16" Flather crank, single pulley. | 26"x6' Detrick & Harvey openside. |

SCREW MACHINES AND TURRET LATHES.

- | | |
|---|--|
| No. 6 Warner & Swasey heavy duty, carriage, power cross feed. | Nos. 0, 1 & 2 B. & S. semi-auto. |
| No. 6 Warner & Swasey tur. lathe. | No. 2 G. B. & S. automatic. |
| No. 4 W. & S. fox lathe, grd. frict. | 1", 1 1/2", 2" Clevelands. |
| No. 4 Warner & Swasey b. g., fr. hd. | 4-sp. Gridleys, auto. (2) model F. |
| No. 2 Warner & Swasey screw mch. | 24" Jones & Lamson (2). |
| No. 1 Warner & Swasey screw mch. | 17" Acme b. g., friction head. |
| No. 2 Warner & S. open hex. tur. | 18" & 24" Fosters, univ. and plain. |
| 1" cap. Pratt & Whitney. | No. 1-B Foster univ., grd. hd. (3). |
| | Large variety of smaller Fosters, etc. |

MISCELLANEOUS.

- | | |
|--|--|
| Bolt cutters, 1", 1 1/2" Landis. | Tappers, 1/2" Garvin, Pratt & Whitney. |
| Bolt cutters, 1 1/2"-1 3/4" (3). | Tapper, 1" Gould & Eberhardt. |
| Keyseaters, Nos. 0 & 2 Becker. | Tapper, No. 2X Garvin auto. |
| Keyseaters, No. 2 Davis. | 1" Landis 1/2" Geometric gear cutter. |
| Large stock of lathes, punch presses, plain and universal grinders, 24", 4' 5', 8', 10' power squaring shears, tappers, several hundred Warner & Swasey, Potter & Johnston, etc., box, boring tools etc. | |

USED AND REBUILT MACHINERY

FOR SALE BY

Syracuse Supply Company. 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:

Pipe machine, No. 70 Forbes.

Exceptional values in USED TOOLS:

Bolt threader, Acme 2-spindle, with one head, 8" capacity.
Drill, Barr 4-spindle, 8" overhang.
Grinder, Blount 14x14 wet tool, m. d.
Knife grinder, 30".
Lathe, 8x60 Fitchburg lo-swing.
Lathe, 26"x10" Cooper Bros., \$125.
Millers, Wisconsin hand, (2).
Pipe threader, Jarecki belt drive.
Radial, 8' Pond.

Radial, 5' Dreeses, single pulley drive, gear box, \$475.00.
Rip saw, No. 2½ Powers, self feed, power.
Screw machine, No. 2½ Garvin.
Thread miller, No. 12 Lees Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster, (2).
Turret lathe, 24x26 Pratt & Whitney.

FOR SALE BY

Norton-Broadway Mch. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

30"x16' Niles-Bement-Pond.
24"x16' New Haven, loose change.
30"x14' Prentice q. c.
27"x14' Pond, q. c.
12-26"x14' Putnams, semi-quick.
24"x14' Lodge & Shipley, q. c.

21"x12' LeBlond, q. c.
19"x10' LeBlond q. c.
20"x10' Bradford, loose change.
16"x 8' Bradford, taper.
16"x 8' Lodge & Shipley, q. c.

MILLING MACHINES.

No. 3 LeBlond plain.
No. 3 Cincinnati, single pulley.
26" Oesterlein universal.
No. 4B Brown & Sharpe heavy duty.
No. 4 Cincinnati universal.

No. 4 Cincinnati vertical sgl. pul.
No. 3 Brown & Sharpe, vertical.
No. 2 Cincinnati, vertical.
No. 12 Pratt & Whitney, Lincoln type
Owen two-spindle.

BORING MILLS.

24" New Era.
36" Niles, 2 heads.
34" Bullard, 1 head.
42" Gisholt, 2 heads.

42" Niles-Bement-Pond, 2 heads.
50" Niles, 2 heads.
72" Wais & King, 2 heads, \$1,500
6" Gray horizontal.

PLANERS.

24"x24"x6" Ohio.
24"x24"x 8' Pond, 2 heads.
24"x24"x 8' Putnam, 1 head.
30"x30"x 16' Gray, 2 heads.
48"x16' Detrick & Harvey open side.

48"x10' Belmer, 4 heads.
48"x16' Cincinnati, 4 heads.
24"x 8' Smith & Silk, 1 head.
Whitcomb crank planer.

DRILLS AND RADIALS

3-spindle Henry & Wright, 7".
4-spindle Reed sensitive.
3-spindle Reed sensitive.
6-spindle Reed sensitive.
24" Barnes, camel back.
3' Morris, single pulley, gear box.

3' Fosdick, cone drive.
3½' Fosdick, motor drive.
4½' Morris radial, arr.m.d., with mtr.
5' American, semi-univ., sgl. pulley.
5' universal, old style.
6' American plain radial, sgl. pul. dr.

MISCELLANEOUS.

Automatics, Model B Cleveland (2).
Bending brakes.
Bolt cutter, 2-sp. Acme 14".
Compressor, 13/8x10" Worthington, belt drive.
Drill 28" Aurora, tapping att.
Gear hobber, Cincinnati.
Grinders, Nos. 4 & 120 Gardner disc.
Hack saw, 10" Massachusetts.
Hammer, Bradley helve.
Hammers, Bradley strap.
Presses, Toledo, Long & Allstater
& Losbough & Jordan inclinable.
Press, No. 6 Consolidated, inc.

Press, No. 62 Bliss power.
Press, 150 ton Caldwell wheel.
Punch and shear No. 3 H. & J. d. e.
Saw, 9"x9" Peerless.
Shaper, 25" Smith & Mills, m. d.
Shaper, 25" Queen City, a. p. d.
Shears, 6' 8", 10' power.
Shear, No. 252 Niagara pwr., 6' cap.
Slotter, 30" Dill.
Threading mche., Auto. Mch. Co.
Turret lathes, 24" Gisholt, with motors (2).
Turret lathe, No. 4 Warner & S.

More than 300 machines tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Blowers, Root No. 4, 500 c. p. m.
Blowers & exh., 6, 8, 9 & 16" opening.
Bolt cutters, 14" Landis, 2 heads.
Bolt cutters, 14" Morgan, 2 heads.
Brake, 8' x 12 ga. power, Chicago.
Broaching mch., No. 3 LaP. Hudson.
Burnishing barrel, 24" x 16", glass lined
Cold header, 1" W-F., solid die.
Cold header, 1" W-F., solid die.
Cold saws, Nos. 11 and 12 Higley.
Drill, electric, 1" cap., 110 v., univ.
Drill, 20" Prentice, plain.
Drill, 28" Superior, b. g., s. h.
Drill, radial, 30" Taylor & Fenn.
Drill, radial, 10' for m. d., (cheap).
Drills, radial, 5' and 7' Prentice.
Drills, radial, 34" Bickford.
Drill, radial, 3' Dreses, cone.
Furnace, rotary annealing, 12" x 8'.
Furnace, gas hardening, 10" x 6" x 12".
Furnaces, oil tempering, 10" x 10" x 10".
Gear and pinion cutter, No. 3 Sloan.
Gear cutter, 36" Newark, No. 3.
Grinder, No. 1 Norton universal tool and cutter.
Grinder, No. 11 B. & S., plain.
Grinder, surface, No. 1 W. & M., m. d.
Grinder, surf., No. 2 B. & S., m. d.
Grinder, 12" Bristol, rotary surface.
Hack saws, 8" Atkins, mtr. 1/60/220.
Hack saws, 8" Economy.
Hack saw, 12" x 12" Racine, belted.
Hammers, 40 & 80 lb., Bradley helve.
Hammers, 75 lb. Bradley upright.
Hammer, 100 lb. Bradley upr. strap.
Hammer, 2-B. Nazel, belt and motor.
Hammers, str. s. f. 600, 1100, 1500 lbs.
Hammer, 1000 lb. Chbg., steam drop.
Hardness tester, style A. Brinnell.
Hoist, 4 ton V & T high speed.
Hoist, chain 1-ton, high speed.
Hoist, 1 ton C & M spur gear.
Hoists, air, 700, 800 & 1300 lbs.
Keyseaters, No. 00 & No. 2 Baker.
Keyseater, No. 1 Davis, cutters, new.
Keyway cutter, 24" Morton, cap. 24".
Lathe, 9" x 3' Shepard, speed.
Lathe, 14" x 8' Monarch, t. a.
Lathe, 14" x 6' Lodge & S. q. c. g.
Lathe, 14" x 6' Hendey, q. c. g., t. a.
Lathe, 15" x 8' South Bend, q. c. g.
Lathe, 16" x 8' Hendey, q. c. g.
Lathe, 18" x 10' L. & S., d. c. motor.
Lathe, 20" x 10' Sidney, q. c. g., t. a.
Lathe, 24" x 10' Pgh. — 250.
Lathe, 26" x 10' Walcott, q. c. g.
Lathe, 26" x 10' Bridgeford q. c. g. pan.
Lathe, 21" x 14' LeBlond, g. h.
Lathe, 36" x 64' Bridgeford gun bor.
Lathe, pattern maker's, 24" x 11'

58 Water St., Pittsburgh, Pa.

Miller, vertical, No. 3 Becker, cone.
Miller, 18" Cincinnati, plain cone.
Miller, No. 3 Cin. pl., gear in frame.
Miller, No. 3-B Becker, pl. horiz.
Miller, No. 4 Brown & Sharpe, univ.
Motor, 14 h. p., 3/60/220/1800.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Motor, 20 h. p., 3/60/220/1200.
Nibbling mche., Campbell 6" m. d.
Paper slitter, 15" Jacques, bench.
Pipe machine, 12" Williams, s. p. d.
Pipe machine, 4" Williams, m. d.
Planers, 48 x 48 x 20", 3-heads, Gray.
Planers, 33 x 33 x 10", 2-hds., W. & P.
Planer, 22" x 22" x 5" Cincinnati, 1 hd.
Press, No. 3A Bliss, adj. table.
Press, No. 94 Bliss, punch type.
Press, No. 3 Bliss, punch type.
Press, No. 4 Bliss, punch type, plain.
Press, No. 20 Bliss, o. b. l. type.
Press, No. 1 Toledo o. b. i., pl. m. d.
Press, No. 14 Stiles (Bliss) plain.
Press, punch type, United, 15,000 lb.
Press, D. G. 62, Ferracute, s. s.
Presses, No. 87 Niagara, screw.
Pump, Centrifugal, 4" disch., m. d.
Punch, No. 0 H. & J., 7" thrt., cap. 1" x 1".
Punch, 30" thrt., 1" x 1" m. d., s. e.
Punch, Cleveland E.F., 24" tht. m. d.
Punch, Cleveland E.F., 48" tht. m. d.
Punch, Rapid, 26" tht., 1" x 1", m. d.
Punch & shear, 72" W. W. 2" x 1 1/2", motor drive.
Punch & shear, No. 23 Marvel hand.
Punch & shear, 17-B. New Doty, 10" throat, m. d.
Punch, comb. Oeking, steel 1 x 1", a. j.
Riveter, Grant 101, cap. 5/16" m. d.
Riveter, 1-AA. High Speed, m. d.
Riveter, 1/2" Shuster rotary, belt.
Saw, Burke, 12" blade, capacity.
Saw, shaping, 6 x 6 Peerless with mtr.
Shaper, 16" Cincinnati, sgl. grd.
Shaper, 24" Gould & E., b. g. crank.
Shaper, 24" S. & M. and Steptoe.
Shaper, 26" Kelly, back geared crk.
Shear, 42" x 14" Niagara, 18" gap.
Shear, 1/2" Lennox rotary throatless.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, No. 2 Niagara, hand.
Shear, rotary bevel, 1/2", m. d.
Shear, squaring, 8" x 14 ga. power.
Shear, squaring, 60" x 14 ga. Canton.
Shear, squaring, 12" x 14 ga. (new).
Turbo compres., Spencer 5400 c.f.m.
Turbo-generator, 500 kw, 3/60/2300.
Turret lathe, 13" Gisholt, 24" h. s.
Wheel press, 200-ton Niles, belted.

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FOR SALE BY

Foster Machinery Company,

2613 E. 73rd St., Cleveland, Ohio

Brake, 6', 10 ga., box and pan.
Drill, 18-spindle No. 4 Bausch.
Drill, Baker.
Pipe machine 2" Jarecki.
Shear, 12"x14 ga. Loy & Nawrath.

Shear, double angle, 6x6x1" Long
& Allstatter.
Riveters, Nos. 2-A and 3-A High
Speed.
Upsetter, 2 1/2" Acme (steel).

FOR SALE BY

Box 70, c/o Hitchcock Publishing Co., 508 S. Dearborn St., Chicago

INTERNAL GRINDERS

Three No. 6 Bryant internal grinders, complete with countershaft and all regular equipment. These tools were purchased four years ago, have been thoroughly overhauled, and are guaranteed to be in first-class working condition. Write for particulars.

FOR SALE BY

Davis Machinery Exchange,

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Air compressor, 6x6 Chicago pneumatic, tank.

Air compressor, 6x5 Ingersoll-Rand.

Bolt threader, 1/2" Landis dbl. head.

Bolt threaders, 1 1/2" and 2" National.

Boring mill, 24" Ballard vertical,

new era head.

Brake, 8" Chicago, cap. 18 ga.

Drill, 20" Barnes camel back.

Drill, 20" Barnes, 4-spindle.

Drill, Leland-Gifford high speed,

motor drive.

Drill, No. 310 Baker hvy. duty, (2).

Drill, 3 1/2" Carlton radial, g. b., s. p. d.

Drill, 4" Hammond hinged arm

radial, tapping attachment.

Drill, 3" gang radial, tapping attach-

ment, universal table.

Drill, 16" Kern hi-speed.

Drill, 2-spindle Allen sensitive.

Drill, 6-sp. Nat. Acme horizontal.

Forming rolls, 66" Pettingell hand.

Grinder, No. 2 Gardner disc, comp.

Grinder, No. 4 Gardner disc, comp.

Grinder, No. 4 Gardner disc, 18 h.

p. motor drive.

Grinder, No. 1 Greenfield plain,

5"x13 1/2" hydraulic feed.

Grinder, 8"x18" Ott plain.

Grinder, 10"x36" Landis pl. self-con.

Grinder, No. 60 Heald cylinder.

Groover, 42" Toledo power.

Hammer, 1/2" Schuster riveting.

Hammer, No. 1 1/2-B High Speed

riveting, m. d.

Keyseater, No. 0 Mitts & Merrill.

Keyseater, No. 2 Baker.

Keyseater, No. 2 Davis.

Lathe, 19"x10" Sidney q. c. g.

Lathe, 14"x6" Monarch q. c. g., chuck

Lathe, 16"x6" Monarch q. c. g., chuck

Lathe, 16"x8" Oliver q. c. g., engine.

Lathe, 22"x9" National q. c. g., en-

gine, geared hd., single pulley dr.

Lathe, engine, 18"x7" Lehmann, q.

c. g., chuck.

Lathe, 16"x8" Monarch l. c. g., eng.

Lathe, engine, 24"x12" Greaves-K.,

l. c. g.

Mill, No. 1 Cincinnati universal.

Mill, No. 2 Rockford universal, in-

dex head, complete.

Mill, 1 1/2"-A B. & S. universal, s. p. d.

Mill, No. 3 Brown & Sharpe univ.

Mill, No. 1 1/2 Cincinnati plain, all

geared feeds.

Mill, No. 2M Potter & J. horizontal.

Mill, A. B. Becker vertical.

Mill, No. 2 Brown & Sharpe plain.

Mill, No. 6 Whitney hand.

Mill, No. 12 B. & S. production, (2).

Miller, Fox hand.

Milling and drilling machine, No. 1 1/2

Knight.

Oil separator, American.

Pipe threader, 4" Merrill, full set of

dies.

Planer, 24"x24"x6" Lodge & D. 1 hd.

Press, arbor, No. 3 Greenerd.

Press, No. 51 Toledo arch. grd., 7" str.

Press, No. P1 Ferracute s. b.

Press, No. P2 Ferracute s. b.

Press, No. 4 Adriance o. b. i.

Press, No. 4 Toledo o. b. i., flywheel.

Press, No. 5 1/2 Consolidated o. b. i.

Press, No. 6 Bliss horiz. heading.

Rolls, John Evans large tapering.

Rolls, 60" Hendley & Whittemore

power forming, 14 gauge.

Screw machine, No. 1 Warner & S.

Screw machine, No. 6 Warner & S.

Screw machine, No. 7 Foster.

Shaper, 10" Gould & E. crank.

Shaper, 16" American crank b. gr.

Shaper, 20" Mattison crank, b. g.

Shaper, 24" G. & E. crank, b. g.

Shaper, 24" Milwaukee cr., bk. grd.

Shear, No. 135 J. M. Robinson pwr.

square, cap. 36"x18 gage.

Welder, 10k. w. Federal spot, 220 v.

Welder, 50 k. w. Taylor spot, 440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co., 130 So. Clinton St., Chicago, Ill.

Auto. screw mach., 1½" Gridley 4 spindle model F.....	\$ 950.
Auto. screw mach., Cleveland, 1½", Model A.....	150.
Bolt cutter, 2" D. & H., double head.....	300.
Drill, 21" Cincinnati sta. head, with tapping attachment.....	200.
Drill, 28" Superior, sliding head, back geared and power feed.....	325.
Drill, 1-spindle No. 3 Avey with tapping.....	275.
Drill, 2-spindle 14" Avey h. s., b. b., old style.....	200.
Drill, 4-spindle 20" Superior h. s., b. b., q. c. No. 3 Morse taper.....	550.
Drill, radial, 3' American sensitive.....	200.
Drill, 20"—2-spindle Hofer power feed.....	250.
Gear cutter, B. & S. No. 3 28" for spur gears.....	450.
Grinder, 24" Diamond disc, with disc and ring wheel.....	300.
Grinder, 28" Ransom disc, 2 tables.....	350.
Grinder, No. 65 Heald, with fixtures, b. b. spindle.....	900.
Grinder, No. 14 Cincinnati cutter and tool.....	450.
Grinder, No. 11 B. & S. plain 6"x32".....	750.
Grinder, 12"x48" Modern plain, self contd., c/s.....	750.
Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel.....	2,000.
Hammer, No. 5A High Speed riveting.....	400.
Lathe, 14x6 Hendey q. c., taper and draw-in.....	450.
Lathe, 14"x8" Flather, quick change, taper and chuck.....	250.
Lathe, 16x8 South Bend with gap 24" standard change, new.....	550.
Lathe, 18"x9" Chard semi-quick change gear.....	400.
Lathe, 19"x11" Chard, semi-quick change gear.....	425.
Miller, Whitney, Standard and U. S., hand.....	125.
Miller and drill, No. 1 Knight.....	200.
Miller, No. 1 Garvin universal, fully equipped.....	600.
Miller, Briggs, G. & E. manufacturing, 16".....	200.
Miller, No. 5 Becker vertical, no rotary.....	500.
Miller, No. 7 Becker, Lincoln type.....	150.
Miller, No. 21 Garvin power feed, oil pump.....	150.
Miller, Hendey, Lincoln type.....	100.
Miller, No. 12 Brown & Sharpe production type.....	350.
Miller, Ingersoll slab, 42"x36"x9".....	1,750.
Oil separator, National, about 1 bushel.....	75.
Planer, 26"x26"x6" Cincinnati, 1 head.....	500.
Planer, 24x24x8 Fitchburg, 1 head.....	400.
Planer, 32x32x8 Pond, 1 head.....	750.
Planer, 36"x36"x12" Cincinnati with 2 heads.....	1,500.
Press brake, 10' Ohl power, No. 10 gauge.....	1,800.
Shear, No. 772 Niagara 3/16x72", m. d.....	750.
Shear, L. & A. No. 2 cap. 3/16"x16" with gap.....	2,500.
Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor.....	175.
Screw machine, P. & W. 1x4, complete.....	150.
Shaper, 16" Steptoe, crank, back geared, vise and c/s.....	425.
Shaper, 16" Smith & Mills, back geared vise and countershaft.....	450.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s.....	750.
Shaper, 20" Ohio, crank, back geared, vise and c/s, nearly new.....	900.
Shaper, 25" Steptoe crank, back geared, vise and c/s.....	750.
Shaper, 28" G. & E. Invincible b. g. crank, vise and c. s.....	1,250.
Shaper, 24" Rockford universal combination.....	1,100.
Slotter, 12" Putnam universal.....	1,000.
Turret lathe, 24x10" Milholland, for chuck and bar work.....	750.
Turret lathe, No. 7 Foster for chuck and bar work.....	750.
Turret lathe, No. 2A Warner & Swasey, with chucking equipment.....	1,500.
Turret lathe, 24" Steinlee, 4" hole, side carriage.....	700.

FOR SALE BY

W. H. Hobbs Supply Co., Eau Claire, Wis.

Drill press, No. 129 Gould & Eberhardt, square base, round adjustable table, variable speed, 4 step cone speed changes.

Gap lathe, Phoenix special, 84" face plate, geared head, variable speed. geared countershaft, 10' c. l. bed.

Motors, 30, from 3 to 75 h. p., a. c., 400 volt, 60 cycle, 3 phase.

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J. L. Lucas & Son, Inc., **3 Fox St., Bridgeport, Conn.**

Our Latest Purchases.

MILLING MACHINES.

- No. 1 Brown & Sharpe universal, full equipment plus vertical attachment, 3 years old, like new. (2).
 2M Cincinnati universal, late machine, full equipment, (2).
 No. 2 Cincinnati high power universal, s. p. d., slotted nose.
 No. 2 Cincinnati high power plain, s. p. d., slotted nose, power rapid traverse.
 No. 3 LeBlond heavy duty universal, cone drive, full equipment plus vertical heads and rack cutting attachment.

TURRET LATHES.

- No. 2-A Warner & Swasey, 114,000, chucking equipment.
 18"x18" Pratt & Whitney, power feed to turret and cross slide, new.
 24"x26" Pratt & Whitney, power feed to turret and cross slide, new.
 18" Libby, 4 years old, regular equipment, excellent.
 No. 6 Brown & Sharpe hand screw, power feeds.

MISCELLANEOUS.

- Boring mill, No. 1 Cleveland horizontal, single pulley drive, 24" bar.
 Drills, Henry & Wright s. s. high speed, class "B" and "K", (2).
 Grinder, 14" Pratt & Whitney surface, ball bearing, magnetic chuck.
 Lathe, 18"x10" Hendey yoke head.
 Lathes, 14"x6" Hendey yoke head, taper attachment, (2).
 Turret lathe, 24" Bullard vertical, rapid production, New Era type turret.
 Immediate shipment with one or two exceptions, from Bridgeport stock. Quotations immediately on request.

FOR SALE BY

Brownell Machinery Co., **150 Pine St., Providence, R. I.**

BORING MILLS.

- 36" Bullard New Era 42" Bullard vertical.

DRILLS.

- 5' Prentice plain radial. 4-spindle Barr 14".
 3' Prentice plain radial. No. 2 Langelier h. s., b. b. bench.
 7-spindle Dwight slate sensitive.

GRINDERS.

- No. 1 Brown & Sharpe surface. 14" Blount wet tool.
 No. 2 B. & S. universal. No. 1 Walker tool grinder.
 No. 3 B. & S. cutter grinder. C-2-T Grand Rapids drill.

MILLING MACHINES.

- No. 13-B Brown & Sharpe mfg. U. S. hand.
 No. 2-Y B. & S. plain, rack feed. No. 4 Thurston die.
 No. 6 B. & S. plain, rack feed.

PLANERS.

- 60"x84"x16" Gray spur gear, 4 heads. 60"x60"x16" Niles-B.-P., 4 heads.
 36"x36"x10" Whitcomb, spur gear, 17"x17"x 6" Whitcomb, spur gear.
 2 heads. 17"x17"x 4" Whitcomb, spur gear.

POWER HAMMERS.

- 60 lbs. Bradley helve. 40 lbs. Bradley helve.

ROLLING MILLS.

- 12"x20" toggle rolling mill. 8"x10" McWilliams tog. rolling mill.

SCREW MACHINES & TURRET LATHES.

- No. 8 Warner & Swasey g. f. h. 3-1/2". No. 0 B. & S. hand.
 16" Warner & Swasey 1" capacity. 22" Bullard.

SHAPERS.

- 20" Kelley b. g. No. 1 Rhodes.
 24" Hendey friction.

MISCELLANEOUS.

- Band saw, 12" H. & R. metal cutting. Lathe, 12"x6" Hendey tie bar.
 Blower, No. 8 Boland positive pres. Rolling mill, toggle 12"x20".
 Blower, No. 6 Boland positive pres. Rolling mill, 8x10 McWilliams.
 Filing machine, Cochrane & Bly. Slotter, 12" Bement-Miles.
 Gear cutter, No. 13 Brown & Sharpe. Riveter, 1" Grant bench.
 Lathe, 21"x16" Porter, q. c. g.

USED AND REBUILT MACHINERY

FOR SALE BY

W. P. Little Co.,

Bolt cutter, 14" Acme.
Drill, 20" Barnes, 3-spindle.
Drill, 20" Barnes, 4-spindle.
Drill, 26" Barnes, sliding head.
Drill, 4' Prentice radial.
Gear cutter, 30" Whiton.
Grinder, No. 10 Besly disc.
Grinder, No. 6 Besly disc.
Grinder, No. 200 Heald rotary.
Grinders, 60, 75 and 85 Heald inter.
Grinders, Nos. 6 & 10A Bryant int.
Hammer, 75 lb. Beaudry power.
Hammer, High Speed No. 4A.
Lathe, 18x8' Whitcomb-Blaisdell.
Lathe, 24"x10' LeBlond.
Lathe, 50"x18' Pittsburgh triple grd.

W. 9th & Front St., Cleveland, O.

Milling machine, No. 4 Becker vert.
Milling machine, 28" Cincinnati face.
Pinion cutter, Bilton automatic.
Pinion cutter, Standard automatic.
Planer, 32"x32"x14' Pond.
Punch, No. G Cleveland 24" throat.
Shear, 48", 16 gauge power.
Shear, 60", 16 gauge power.
Shear, 4" Rock River splitting.
Shear, S24 Yoder rotary.
Tapper, No. 1 Garvin automatic.
Tumbling barrel, Hoevel sand blast.
Turret, No. 6 Warner & Swasey.
Turret, No. 3 Foster.
Turret, 2"x24" Jones & Lamson.
Wiring machine, No. 1 Magee.

Partial list. 150 other tools on hand. Send us your inquiries.

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
Boring mill, Barlett 5" horiz.
Boring mills, 4 Bullard 42" low price.
Cut-off mchs., 4 Davis 6" capacity.
Demagnetizer, Walker.
Drill, Moline 4-spindle.
Drills, Baker, heavy duty (2).
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Kokomo 1-spindle, Sipp 1
spdl., h.s., b.b., H. & W. 2-spdl.
Drills, 20", 24", 26 & 28" b. g., & tap.
Drills, Prentice 3'; Bickford 4' radials
Cincinnati-Bickford 3 1/2' s. p. radial.
Gear hobber, Gould & E. 24".
Grinders, Landis piston, motor drv.
Grinder, Heald No. 60 cylinder.
Grinders, modern internal; Blount
39", wet (3), Heald 8", mag. ck.
Grinders, St. Louis No. 9; Modern
12"x60"; Landis 12"x36".
Grinder, Reed-Prentice vert. surf.,
2 chucks, table 12"x80".
Grinder, Landis 16"x66" crankshaft.
Hack saws, 4x4, 6x6 & 2 Racine Jrs,
Atkins 4x4' Peerless 6x6".
Hammers, Bradley 40 lb. helve;
Lathes, Davis 32"x10" q. c. g.;
Monarch 11"x4' and 12"x6", q. c. g.
LeBlond 16"x8' Whitcomb-B. 22"x
8' q. c. g. Monarch 16"x8'; C. & J.
15"x8' q. c. g.; all quick change
grd.; 40 assorted sizes, quick and
loose change gear.
Lathes, Fitchburg 24"x18'; Greaves-
Klusman 24"x16'; LeBlond 30"x14',
all standard change.
Milling machines, Ohio No. 20 plain.
LeBlond No. 3-H plain; Brown &
S. No. 3 plain; B. & S. No. 3 Bpl.,
s. p. d.; American No. 1 1/2 plain;
Cincinnati No. 3 plain; Becker

No. 25 plain, Kemp No. 3 univ.;
Cincinnati No. 1 1/2 univ.; B. & S.
No. 2 plain.
Milling and drilling mchs., Knight
No. 1 1/2 with power feed.
Pipe machine, Curtis 3", motor dr.;
Merrill 4" belt drive, Jarecki 2";
E.C. & B 16"; Bignall & Keefer 12";
Planers, Gray 28"x28"x6", 1 head;
Cincinnati 36"x36"x18" 2 heads;
Pond, 36"x36"x12' table, 18' bed,
2 heads; Withcomb 30"x30"x8".
Punches, Reade 15" s. e., 1" in 1".
Punch presses, 4-Consolidated No. 2;
Holden No. 58; Bliss No. 62 grd.;
Ferracute No. 1 o. b. i., (2) Federal
Nos. 1, 2, 3; Niagara No. 4 1/2
o. b. i.; Bliss No. 19-C, o. b. i.
Federal No. 4.
Saw, Peerless universal shaping.
Screw machine, Cleveland 24" auto.;
P. & W. No. 2 1/2 hand; Foster No. 3
hand; Woods No. 2 tilted turret
head; National-A. No. 52 auto.,
4-spindle, m. d.; Milholland b. g.
hand; Foster No. 7 hd. b. g.
Shapers, S. M. 16"; 24" Queen City
24" back geared, American 20" b. g.;
G. & E. 16", b. g.; Niles traveling
hd.; Milwaukee 16" b. g.; Walcott
20" b. g.; S. & M. 21" and 26"
b. g.; American 18" b. g.; Ohio 16".
Shears, 60" thrt. rotary slitting. (2).
Square shears, Niagara 62" power.
m. d. 18-ga.
Threading machines, Webster &
Perks 4-spindle.
Turret lathes, Bullard 24" vertical.
Welders, butt, Federal, 1/2" rds.
Welder, spot, Vollans; Kay See.

USED AND REBUILT MACHINERY

FOR SALE BY

O. C. Kockley Co., - **565 Washington Blvd., Chicago, Ill.**

HYDRAULIC PRESS.

800 tons 24"x24" platens 18" daylight 6" stroke. Can be installed for either upward pressure or downward pressure operation. This is a new press and is ideal for die work or hobbing operations. Also variable pressure cast iron weighted accumulator $\frac{1}{2}$ gal. 4000 lbs.

FOR SALE BY

Allegheny Forge, - **507 Liberty Ave., Pittsburgh, Pa.**

Centering machine, No. 1 Whiton.	26"x9'; 26"x10'; 32"x10'.
Crane hoists, 2 ton, portable.	Millers, No. 3 P. & W.; No. 5 Beck.
Furnaces, 18'x8'x6' 6".	Miller, portable, 12' 34" cross.
Gear cutter, No. 3A Cincinnati.	Planer, 48"x10', 3 heads and motor.
Gear shaper, No. 62 Fellows.	Radial drill, No. 5 Morse 5'.
Grinders, No. 20 Bryant.	Sand blast, 24"x24", cyl. 26"x34".
Guillotine shear, 14' round.	Shapers, 28" & 24" G. & E.; 20" Niles.
Hand rolling mill, 9" stand.	Upsetter, 24" and 34".
Lathes, 16'x8'; 18'x10'; 24'x17';	

FOR SALE BY

Indiana Machinery Company

Taylor Street & Nickel Plate Railroad, Fort Wayne, Ind.

Lathe, Champion 14"x6' quick change, taper.....	\$ 400.
Lathes, 22"x12' Niles loose change, heavy, 4 of these, each.....	225.
Lathe, Niles 24"x14' loose change, heavy.....	300.
Planer, Pond 24"x24"x5' 1 head.....	250.
Planer, Pond 26"x26"x6' 2 heads.....	500.
Radial drill, Mueller 4' single pulley, gear box drive.....	800.
Radial drill, Niles, 6' full universal, single pulley, gear box drive.....	750.
Turret lathe, Warner & Swasey 2A, bar and chucking equipment.....	2,000.

FOR SALE BY

Clinton Machinery Co., **126-128 S. Clinton Street, Chicago, Ill.**

MILLING MACHINES.

No. 3 Cincinnati plain.	No. 14 American plain.
No. 2BS Kearney & T. s. p. d.	No. 14 Valley City universal.
No. 2 Rockford s. p. d. universal.	No. 0 Steptoe p. f.

LATHES.

26"x12' Advance q. c. g.	16"x6' American q. c. g. taper att.
22"x10' American l. c. g., (2).	16"x6' Monarch q. c. g.
20"x12' Bradford q. c. g.	14"x12' Monarch g. h., motor drive.
24"x8' American grd. head q. c. g.	14"x6' Carroll & Jamieson q. c. g.
18"x8' Morris q. c. g. taper & collets.	14"x5' Seneca Falls with chucks, (2).
16"x8' Hendey q. c. g. draw-in & col.	4' Hardinge, 1/2" Rivett-bench.

PUNCH PRESSES.

No. 76 Toledo b. g., 4 1/2" stroke.	No. 4 Consolidated o. b. l.
No. 4 American Can o. b. l.	No. 93 Bliss Stiles type.
No. 4 Cleveland o. b. l.	No. 61 Bliss s. a. reducing 4" str.
No. 2 V. & O. o. b. l.	No. 58 Bliss s. a. reducing 2 1/2" str.

GRINDERS.

No. 14-30" Besly disc with press.	6x32" Norton cylindrical.
No. 10-18" Besly disc, with press.	20"x72" Landis crankshaft.
Dauber-Kratsch tool and cutter.	No. 1 Grand Rapids universal.

MISCELLANEOUS.

Drill press, 24" Foote-Burr h. d., t. a.	Milling & drilling mch., No. 1 Knight
Hack saw, 6x6, 9x9.	Screw machines, No. 3 Woods p. f.
Hammers, 30 lb. Bradley m. d.	Shapers, 15" Potter & J. p. f. (2).
Hammers, high speed 1 1/2 B, 3A, 5-1/2 B.	Tapper, No. 2X Garvin automatic.

USED AND REBUILT MACHINERY

FOR SALE BY

Badger-Packard Mch. Co., 133-9 W. Water St., Milwaukee, Wis.

Dial feed, for Rockford Nos. 4 or 5 punch press.....	\$225.
Die filer, No. 1 Barry, bench type, nice shape.....	60.
Die filer, No. 3 Barry, floor type, almost new.....	150.
Drill, No. 25 Foote-Burt heavy duty, rebuilt.....	500.
Drill, 24" Baker heavy duty 3" capacity, rebuilt.....	500.
Miller, No. 1-A K & T., plain type, single pulley drive, single overarm, overhauled and in fine shape.....	400.
Miller, No. 2-K & T., plain type, single pulley drive, single overarm, overhauled and in fine shape.....	700.
Miller, No. 33 Kempsmith, overhauled and in excellent shape.....	1000.

FOR SALE BY

R. S. Armstrong & Bro. Co., 676 Marietta St., N. W., Atlanta, Ga.

LATHES

15"x 8' Sidney q. c., d. b. g.	24"x 20' American q. c. g., d. b. g.
15"x 11' Chard semi-q. c., d. b. g.	24"x 14' South Bend l. c., taper at.
20"x 8' L. & S. q. c. g., s. b. g.	28"x 18' Walcott q. c. g., d. b. g.

GRINDERS

No. 1 Cincinnati cutter and tool. No. 3A Landis universal.

SHAPERS

12" Springfield plain crank. 20" Steptoe back geared.
20" Steptoe plain crank. 24" Smith & Mills back geared.

DRILLS

14" U. S. sensitive. 32" Hoefel sliding head.
26" Barnes sliding head. 42" Bickford sld. hd., tapping att.
No. 25 Foote-Burt h. d. 24" Fosdick radial, cone, tap. att.

MISCELLANEOUS

Bolt cutter, 1 1/2" Acme dbl. hd. Hobber, 12-H Gould & Eberhardt
Gear cutter, No. 3-26" B. & S. Hobber, 18-H Gould & Eberhardt
Gear cutter, 32"x9" Gould & E. Keyseater, No. 2 Mitts & Merrill.
Hack saw, 6"x6" Peerless. Pipe machine, 4" Oster.

Partial list. 100 other tools in stock. Send us your inquiries.

FOR SALE BY

Brandt Machinery Company,

50 Penn Ave., Pittsburgh, Pa.

Boring mill, No. 21 Lucas 24" bar.
Brake, 8"x3/16" Robinson leaf type.
Brake, 12"x1" D. & K. No. 227.
Bending rolls, 10"x4" initial type.
Bending rolls, 10"x4" Bertsch, m.d., d. e.
Bending rolls, 12"x8" Fisher d. e.
Bolt cutter, 1 1/2" Acme dbl. head.
Bolt cutter, 1 1/2" Landis m. d.
Bolt cutter, 24" National belted.
Crane, 5 T. 56" Case 220 v., d. c.
Crane, 5 T. 56" Morgan 220 v., d. c.
Crane, 10 T. 56" Morgan 220 v., d. c.
Crane, 10 T. 69" 11" Morgan 220 v., d. c.
Crane, 10 T. 50' 4" Shaw 3-60-220 v.
Crane, 3 T. 21" Shepard a.c. 2 mtr.
Crane, 5 T. 31' 6" Detroit a.c. 2 mtr.
Crane, 5 T. 28" Detroit a.c. 2 motor.
Drill, 5" Prentice.
Forge machine, 3" Ajax, m. d.
Gear cutter, 72"x20" Cincinnati.
Hammer, 250 lb. Chambersburg st.
Hammer, 4, 6, 8 th. lb. Morgan st. drops.

Lathe, 26"x16" Bridgeford, g. h., t.a.
Lathe, 36"x18" Porter ch. Al.
Miller, No. 6 Becker vertical.
Miller, 18" and 24" Cincinnati hvy. duty auto, single head.
Pipe machine, 8" and 10" Jarecki.
Punch, No. 12 W-W 15" arch jaw.
Punch, 36" Cleveland t. & l. pulley.
Punch, 24" Cleveland arch jaw.
Planer, plate, 25" Niles.
Planer, 72"x60"x14" Gray, 2 heads.
Planer, 48"x48"x16" Cleve.o.s., 2 hds.
Planer, 36"x36"x9" Powell A-1.
Press, No. 59B Toledo, 9" stroke.
Press, Nos. 57, 57 1/2 Toledo.
Press, Nos. 73 1/2, 74 1/2, 75 1/2 Bliss.
Press, Nos. 6, 7 Am. Can style M.
Press, Nos. 56, 64 Consolidated, s.s.
Shear, 6', 8', 16'x3/16" squaring.
Shear, 8', 10', 12'x4" squaring.
Shear, 8', 10'x4" squaring.
Shear, 8x8x1 L. & A. dbl. angle.
Shear, 3 1/2"x3 1/2" Cleve. guill. type.
Shear, 1" throatless, Marshalltown.
Shear, 1 1/2, 2, 3, 4, 5 sq. guill.

Send us your list of Tools For Sale. Send us your inquiries.

USED AND REBUILT MACHINERY

FOR SALE BY

A. M. Stoehr Machinery Co.

Bender, Wells pipe 2" capacity.
Bender, Excelsior angle 2x2x $\frac{1}{4}$ "
Bolt cutters, Landis, Acme, Nat. 1"
Brakes, 12' $\frac{1}{2}$ ", 8' and 10' 10 ga.
10' $\frac{1}{2}$ " apron motor drive.
Millers, No. 2 $\frac{1}{2}$ Rockford No. 3
Cincinnati.
Punch and shears, $\frac{1}{2}$ ", 1", 1" & 1 $\frac{1}{2}$ ".

106 S. Jefferson St., Chicago, Ill.

Planers, Pond 68x60x12', 48x48x32',
42x42x28', 36x36x12'.
Rolls 7' $\frac{1}{2}$ ", 14' 7/16", drop ends.
Shear, 6' circle. $\frac{1}{2}$ " cap.
Sq. shears 10' 10 ga. 10' 14 ga. 10 &
12' 18 ga. 8' 10 ga., 20" gap.
Wire straighteners up to $\frac{3}{8}$ " cap.
Welders, both butt and spot.

FOR SALE BY

E. L. Klauber Machinery Co.,

320 South Third St., St. Louis, Mo.

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Blowers, Sturtevant, No. 5, 6 & 8.
Bolt cutter, 1" Landis.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear miller, automatic, 4" cap.
Grinder, No. 2 Garvin hole.
Grinder Taylor wet tool.
Grinders, Woods tool and cutter.
Grinders, disc, motor drive, bench.
Lathe 9x14 Porter-Cable.
Lathe, 20x8 Rahn-Larmon.
Lathe, 32x16 Bradford.
Milling machine, No. 2 LeBlond.
Milling machine, No. 2 Brainerd.
Milling machine, No. 4 Cincinnati
plain, all geared, single pulley dr.
Motor, 75 h. p. 3 phase.

Planer, 24x24x6 Gray.
Punch and shear, No. 18 Williams
& White.
Rivet spinner, Grant No. 80.
Screw machine, Gridley 1 $\frac{1}{2}$ ", 4-sp.
Screw machine, No. 0 Brown &
Sharpe automatic.
Screw machines Woods tilted turret,
friction geared head. (2).
Screw machine, Acme with bar feed
and automatic chuck.
Screw machine, No. 86 National
Acme 4-spindle automatic.
Shaper, 16" Steptoe.
Shaper, 14" Hendey.
Tapping machine, No. 6 St. Louis.
Tapping machine, Rickert-Shafer.
Tapping mche., No. 1 Garvin auto.
Welder, spot; National 25 k. w.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Arbor press, No. 3 $\frac{1}{2}$ Greenerd.
Arbor press, No. 3 Greenerd.
Automatic, Potter & Johnston 5-A m. d., late machine, perfect condition.
Automatic, Cleveland Model A, 3 $\frac{1}{2}$ ".
Brake, 8'x16 gauge Robinson power brake.
Broach, No. 3 J. N. La Pointe double, like new.
Drill, Moline 4-spindle No. 5 Morse taper.
Drill, radial, 5' Fosdick motor drive.
Drill, radial, 4' Hammond sensitive, tapping attachment s. p. d. or m. d.
Drill, Demco, ball bearing sensitive, 12000 r. p. m., bench type.
Grinder, Landis, 10"x72" self contained, motor drive, excellent condition.
Hammer, High Speed riveting No. 5-A motor drive.
Hammer, Beaudry 200 lb., used very little, belt drive.
Lathe, 13"x4' South Bend motor drive, like new.
Lathe, speed 9"x4' Greenfield, motor drive good as new.
Milling machine, Brown & Sharpe No. 3 plain, power quick traverse table.
Milling machine, Milwaukee, No. 2A mfg. type, single pulley drive.
Polishing lathes, double end ball bearing. (5).
Polishing machine, Production vertical, belt polishing machine (2).
Press, Cleveland No. 82 s. s. trim. with side shear, new condition.
Press, Cleveland No. 6-I, o. b. i. brand new, weight 3300 lb.
Saw, No. 4-B Cochrane-Bly cold saw.
Tapper, Garvin No. 1 automatic.
Thread miller, Coulter hob thread miller, perfect condition.
Turret lathe, 28" Gisholt complete with tools.
Turret lathe, 24" Gisholt motor driven, 6 $\frac{1}{2}$ " hole thru spindle.

USED AND REBUILT MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

Drill, 4' Harrington radial, belt.
 Drill, 32" Aurora, motor driven.
 Drill, 30-spindle Natco, No. 2 taper.
 Gear cutter, 36" Becker-B. auto.
 Gear cutter, No. 24 Whiton, belt dr.
 Grinder, 12"x36" Cincinnati univ.
 Hammer, 2000 lbs. Chambersburg,
 double frame, steam forging.
 Hammer, 1100 lb. N. B. P., sgl. fr.
 Hammer, 100 lb. Little Giant, belt.
 Lathe, 18"x9" American.
 Lathe, 26"x49"x14" McCabe-2-in-1,
 belt.
 Lathe, 30"x30" Harrington.
 Lathe, 26"x30" Pond, with motor.
 Miller, Newton duplex, planer type,
 table 21"x12".
 Miller, No. 4 Brown & Sharpe plain.
 Miller, No. 4 LeBlond h. d., plain.
 Milling machine, No. 2 Garvin uni-
 versal, vertical attachment.
 Milling mch., No. 3 Garvin duplex.
 Pipe machine, 2" Landis, belt.
 Pipe machines, 2", 4", 6", 8" & 12"
 Oster, Cox, Williams, Eaton-Cole
 & Burnham and Jarecki makes,
 belt or motor driven, comp. stock.

113 N. Third St., Philadelphia, Pa.

Pipe machines, Oster portable, gas.
 drive, all sizes.
 Planer, 36"x36"x12' Cincinnati, 2 hds.
 Press, No. 734 Bliss trimming press.
 Press, No. 37 Niagara, 1100 lb. fly-
 wheel, solid back.
 Press, No. 123 Ferracute, geared,
 double acting, flywheel 475 lb.
 Punch, No. 14 H. & J. 20" thrt., 4x4
 Punch, No. 1 Royersford double end,
 4"x4".
 Rolls, 14' bending, belt, drop end,
 rolls 94" and 84".
 Rolls, 6' Beloit, drop end, rolls 4" &
 44", belt drive.
 Saw, 30" Espen-Lucas, cap. 8".
 Shaper, 16" Cincinnati, one travel-
 ing head, 2 tables.
 Shear, angle, Type C Long & A.
 double, capacity 8x8x1 angles.
 Shear, Niles, plate splitting, 1" cap-
 acity, motor driven.
 Slotter, 10"-12" Dill, belt drive.
 Turret lathe, No. 6 Warner & Swasey,
 wire feed.
 Turret lathe, No. 4 Warner & Swasey,
 wire feed.

FOR SALE BY

The Jones Machine Tool Co.

Front & Pike Streets,

Cincinnati, Ohio

PIPE AND BELT THREADING MACHINES

8" Williams pipe machine.
 2" Crane pipe machine.

2" Acme bolt cutter.
 1" Landis bolt cutter.

SCREW AND TURRET MACHINES

No. 4 Warner & Swasey turret.
 No. 4 B. & O. turret lathe.
 Millholland turret lathe.
 20" Acme turret lathe.
 18" Acme turret lathe.

3"x26" J. & L. chucking machine.
 2"x24" J. & L. chucking machine.
 3"x36" J. & L. 2-spindle turret.
 4" Cleveland, Model B.
 4" Cleveland screw machine.

MILLING MACHINES

No. 14 Valley City plain.
 No. 28 Ohio plain miller.
 No. 3 Cincinnati plain.

No. 2 Cincinnati universal.
 No. 24 LeBlond universal.
 No. 2 Becker vertical.

SHAPERS AND PLANERS

24" American b. g. crank.
 20" Steptoe b. g. crank.
 16" Steptoe plain crank.
 16" Ohio plain crank.

24"x6' Cincinnati planer, 1 head.
 30"x8' Cincinnati planer, 1 head.
 32"x8' Gleason planer 1 head.
 36"x10' Gray planer 2 heads.

GEAR CUTTERS AND GRINDERS

No. 3-26" B. & S. gear cutter.
 30" Flather spur gear cutter.
 Gould & Eberhardt gear hobber will
 hob up to 36" dia. gear.

No. 0 Wilmarth & Marmon cutter &
 reamer grinder.
 No. 1 LeBlond tool & cutter.
 No. 6 Bealy dbl. spld. disc. gr.

PRESSES

No. 18 Bliss o. b. i., press.
 No. 2 Consolidated o. b. i.
 Perkins o. b. i., press, weight about
 2000 lbs.
 No. 2 Swaine horning press.

No. 63-A Waterbury Farrel s. s.
 No. 15 Excelsior plain s. s.
 No. 2 Robinson plain s. s.
 No. 15 Toledo deep throat.
 No. 135 Niagara deep throat.

Send for our latest Stock List.

USED AND REBUILT MACHINERY

FOR SALE BY

Carlson Machinery Co., Inc.,

Davenport, Iowa

Grinder, 24" Inger. cutter, tub type.
Grinder, 10x20 Landis universal.
Lathe, 7"x32" Pratt & W. bench.
Lathe, 11"x3" Blount speed.
Lathe, turret, 1 1/2" cap., bar feed, with
30 collets.
Lathe, 14"x6" Lodge & Shipley.

Miller, No. 1 Milwaukee universal,
dividing hd., vertical attachment,
slotting attachment, rotary table.
Planer, 16"x4" Hendey.
Press, No. 1 Marshalltown o. b. i.
Press, No. 82 Crosby foot kick pr.
Press, No. 2 Springfield straightening

FOR SALE BY

United Mchry. & Supply Co.,

1241 Walton St., St. Louis, Mo.

Bolt threader, 1" Landis.
Bulldozer, Williams & White U-29.
Drill, Foote-Burts p.d., with taper.
Dynamo, plating 2000 amps. & motor
Grinder, 24" Y. & F. knife.
Hammer, helve, small upright.
Hoist, 5 & 6 ton chain.

Lathes, P. & J. Nos. 5A & 6A.
Punch press, gang, Nos. 3, 4 L & A.
Punch and shear, 1/2" in 1/2" d. c.
Punch and shear, No. 51 Beloit.
Rolls, 8' and 6' drop end 5" diam.
Sand mixer, 8' pan, 4' Mullers,
direct motor drive.

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Drill, 1S Garvin duplex.
Grinders, No. 10 Brown & Sharpe.
Grinder, 10"x32" Landis, a. p. d.
Hobbers, Nos. 3, 12-B & C.
Lathe, No. 9 LeBlond multi-cut.

Miller, No. 13-B B. & S., production.
Miller, No. 1 Brown & Sharpe.
Miller, 30"x10" Ingersoll, 4 heads.
Planer, 60"x60"x16" Pond.
Radials, 3' Cincinnati Bickford.

Partial list; send us your inquiries.

FOR SALE BY

Randle Machinery Co.,

1733 Power St., Cincinnati, Ohio

Air compressors, all sizes and types.
Bend. rolls, Nos. 8, 9 Bertsch, m. d.
Bending rolls, 7"x4" H. & J. belt dr.
Bending rolls, 10"x4" Bertsch, m. d.
Bending rolls, 8"x4" H. & J.
Bending rolls, 16"x4" Cleveland.
Bending rolls, 20"x4" Niles.
Bending rolls, 12"x14" vertical.
Bolt cutter, 1 1/2" and 4" Acme.
Bolt cutter, 1 1/2" Landis.
Boring mill, 36, 42, 60 & 72" Bullard.
Boring mill, 51" & 66" Niles.
Boring mill, 80" and 96" Niles.
Boring mill, No. 31 Lucas horiz.
Boring mill, Barrett horizontal.
Brake, 4"x14 ga. Robinson box.
Brake, 8"x16 ga. Pexto.
Brake, 8' and 10"x10 ga. Ohl.
Brake, 12"x8" Ohl, motor drive.
Brake, Nos. 204 & 227 D. & K.
Drill, 3' Carlton.
Drill, 4' American.
Drill, 4' Morris, m. d.
Drill, 5' Cincinnati-Bickford.
Gear hobber, Nos. 1 & 3 Farwell.
Gear hobber, No. 00 S. & S.
Gear hobber, No. 18-H G. & E.

Grinder, No. 19 53" Besly.
Grinder, No. 24 53" Gardner.
Grinder, No. 14 Gardner.
Keyseater, Nos. 1 & 2 Davis.
Keyseater, No. 2 M. & M.
Lathe, 16"x8" Bradford q. c.
Lathe, 24"x14" Schumacher-Boyer l. c.
Lathe, 24"x12" American q. c.
Lathe, 16"x8" Hendey q. c.
Lathe, 32"x10" LeBlond, l. c.
Lathe, 26"x10" Walcott q. c.
Lathe, 37"x28" Putnam l. c.
Miller, Nos. 2 & 3 B. & S. plain.
Miller, No. 3 LeBlond plain.
Miller, No. 2B K. & T universal.
Planer, 24"x24"x8" American, 2 hds.
Planer, 72"x72"x20" Ridgway, 4 hds.
Pipe machine, 6" Jarecki, m. d.
Pipe mche., 6" Eaton-Cole-B., belt.
Pipe machine, 8" Williams m. d.
Shaper, 16" Barker b. g.
Shaper, 24" & 28" G. & E., b. g.
Shaper, 24" Barker b. g.
Shear, 6"x14 ga. Bertsch.
Shear, 8"x16 ga. Bertsch.
Shear, 8"x3/16" Robinson.
Wheel press, 150, 200 & 400 tons.

Also many other tools of various sizes and types. Send us your inquiry.

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Hendey Norton, universal; No. 7H

Becker; Pratt & Whitney 2" spline.

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New Reinesler planer type vertical surface

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30"x24"x20' Ingersoll slab.

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400 ton W. S. 73"x20' hydraulic.

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Bending rolls, 10' x 4".

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No. 12 Modern Plain.
12" Gardner Disc, B. B.
No. 3 Gardner Pol. Lathe, M.D.
No. 1 Waterbury Surf. Grinder.
18" Gorton Disc Grinder.
12" Rudolph & Krummel Disc.
No. 60 Heald Cylinder.

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5' Bickford Radial, S. P. D.
3½' Cincinnati-Bickford, S.P.D.
3' Morris, S. P. D.
4 Spdl. Leland-Gifford, B. B.
14" Henry & Wright, B. B.
25" Barnes, B. G. Sliding Hd.
¾" Rickert-Shafer Tapper.

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No. 3 Kempsmith, Plain.
No. 3 Ryerson-C., Plain, S.P.D.
No. 2AS Milw. Miller, S.P.D.
No. 2 Cincinnati Universal.
No. 1½ American, Plain.
No. 3 Becker Vert., Motor Dr.
No. 1 Wisconsin Hand.

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24" Gould & Eberhardt, B. G.
16" Cincinnati, B. G.
15" Potter & Johnston Univ.
14" Smith & Mills.
12" Rockford.
30"x 30"x 10' American Planer.
26"x 26"x 12' Pond Planer.
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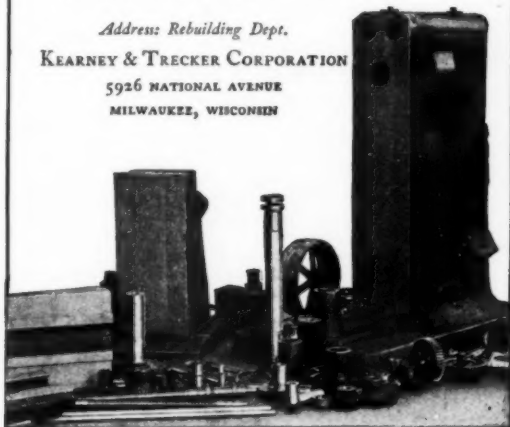
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- 18" Cincinnati Duplex Automatic Miller, s. p. d.
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2' American Tr. Geared Plain, cone pulley
4' Hammond b. b. Sensitive.
3' American b. b. Sensitive.
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25" & 21" Superior Upright.

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22" W. F. & J. Barnes 4-spindle Gang.
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No. 2 Avey 2-spindle, ball bearing.
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36"x16' American Hi-Duty, G. H., q. c.
36"x16' Lodge & S. Sel. Grd. Hd., q. c.
30"x14' L. & S. Q. C., taper att.
24"x14' & 24"x12' Cisco G. H., q. c., new
26"x12' Pittsburgh quick change.
24"x12' American Tool Wks. q. c.
24"x12' Amer. H. D. G. H., q. c., late.
24"x10' Greaves & Klusman q. c.
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20"x12', 20"x10' & 20"x8' Cisco Grd.
Head, quick change, brand new.

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16"x10' Lodge & Shipley q. c., late.
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Nos. 3-A & 2-A W. & S. Universal Hollow Hex. Turret.
24" & 21" Cisholt Turret, t. a., late.
3"x36" Jones & L. Turret, chk. equip.
3"x36" J. & L. dbl. sp. Tur., chk. equip.
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2¼"x26" Acme Flat Turret, chuck equip.
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Nos. 12 & 3 Barber-C. Gear Hobbers.
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6", 11" & 18" Gleason Bevel Gr. Generat.
No. 16-26" Blanchard Vert. Surf., b. d.
12" P. & W. Vert. Surf., rot. mag. chk.
No. 3 B. & S. Planer type Surface.
Walker single stroke Vertical Surface,
Nos. 2 & 3 W. & M. Auto. Surf.
12" Persons-After Rotary Surfaces.
No. 70 Heald Int., clutch in head.
Nos. 70 & 75 Heald Internal.

Capitol Internal Grinder.
No. 120 Gardner Double Disc.
No. 4, 23" & No. 8, 40" Gard. Disc.
No. 60 Heald Cylinder.
6"x32", 10"x36", 10"x50" & 10"x72" Norton Plan.
6"x18", 10"x36" & 10"x52" Landis Pl.
No. 11 B. & S. Plain, self-cont., late.
No. 2-12"x36" Cincinnati Plain, late.
8"x30" Modern Plain, self-contained.
No. 1½ Cincinnati Univ. Tool & Cutter
No. 1 LeBlond Universal Tool & Cutter.
No. 3 B. & S. Universal.
No. 2½ Bath Universal, complete equip.

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Nos. 4 Hendey Univ., single pulley, comp.
Nos. 3 & 2 B. & S. Univ., c. p., compl.
No. 1-B LeBlond Univ., c. p. complete.
No. 5 Cincinnati H. P. Plain, arr. for m. d., rect. over-arm.
No. 4 Cincinnati H. P. Plain, arr. for motor drive, power rapid traverse, late.
No. 2 Cinti. H. P. Plain, s. p., late.
No. 3 Ohio Hvy. Plain, c. p., p. r. t.
No. 3 B. & S. Plain, cone p., p. r. t.
Nos. 3, 2 & 1½ Cincinnati Plain, c. p.
Nos. 3 & 1 Kempsmith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.
Nos. 2-H & 1½ Brown & S. Pl., c. p.
Nos. 2½ & 2 LeBlond Pl., cone pulley.
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Nos. 2-B & 1½-B Special Milwaukee Plain, s. p. d., double over-arm.
48" & 24" Cincinnati. Auto., late.
No. 3 Toledo Vertical, s. p. d.
48"x42"x8" Ingersoll Slab.
48" & 24" Cincinnati Auto. Duplex.
28" Cincinnati Semi-Auto. Face Miller.
No. 33 Kempsmith Manufacturing.
18" Cincinnati Plain Manufacturing.
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Gooley & Edlund (Briggs type) Mfg.
Becker Model "C" Vertical Cont.
No. 3½ Fox Hand and Power.
No. 2 Pratt & Whitney Hand & Power.
No. 6 Whitney Hand.

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26", 24" & 20" Kelly H. D., b. g. Cr.
25", 20" & 16" S. & M. H. D. B. G. Cr.
24" Gould & Eberhardt H. D. B. G. Crank, m. d. thru gear box, late type.
24" & 20" Walcott H. D., B. G. Crank.
24" Stockbridge H. D., B. G., Crank.
20" Milwaukee H. D., B. G., Crank.
20" Amer. H. D., B. G. Crank, S. P.
20" Cincinnati H. D., B. G., Crank.

24" & 16" Barker h. d., b. g., Crank.
16" Columbia H. D., B. G. Cr. arr. m. d.
16" Hollingsworth H. D., B. G., Crank.
24" Cincinnati Crank Planer.
24"x24"x10" Liberty, 1 head.
30"x30"x10" American, 1 head.
33"x33"x8" Ohio, 2 heads.
54"x54"x26" Niles-Bement-Pond, 3 hds.

MISCELLANEOUS

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Boring Mill, No. 1 Barrett Horizontal, 3" diameter bar.
Boring Mill, No. 2½-A Universal Horizontal, 2½" diameter bar.
Boring Mill, Rockford Horizontal, 3½" diameter spindle.
Boring Mill, 72" Bickford Vert., 2 hds.
Boring Mill, 51" Bullard Vertical, 2 hds.
Boring Mill, 24" Bullard New Era.
Boring Mill, 24" Bullard Rapid Prod.
Boring Mill, 30" Gisholt Vertical, turret head, power rapid traverse.
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Press, No. 91-D Toledo Double Crank Geared Power.
Press, P. G. No. 6 Ferr. Grd. Power.
Press, No. 83-C Michigan Dbl. Crank Grd. Power, 42" between uprights.
Shear, No. 511-E Toledo Power Gap Sq., cap. 73" long, 11 gauge.
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- 1-45"x24' Pond.
- 1-42"x71' American Grd. Hd.
- 1-42"x26' American Grd. Hd.
- 1-36"x71' American Grd. Hd.
- 1-36"x34' American Grd. Hd.
- 1-30"x12' L. & S. Sel. Grd. Hd.
- 5-26"x18' Niles-Bement-Pond.
- 10-26"x16' Bridgeford.
- 5-26"x14' Niles-Bement-Pond.
- 5-26"x12' Bridgeford.
- 40-26"x10' Niles-Bement-Pond.
- 15-26"x10' Whitcomb-Blaisdell.
- 44-26"x10' Bridgeford.
- 9-25"x12' LeBlond.
- 5-20"x22"x16' American.
- 6-20-22"x8' American.
- 1-19"x12' LeBlond Grd. Hd.
- 3-20"x 8' Cisco.
- 1-18"x 9' Chard.
- 1-16"-18"x8' American Grd. Hd.
- 1-16"x 8' Hendey.
- 1-16"x10' Sundstrand Mfg.
- 2-14"x6' Lodge & Shipley.
- 5-34" Fitchburg Loswing.

Turret Lathes

- 2-26" Libby. 3-21" Gisholt.
- 10-34" Steink; 4-24" Gisholt.
- 1-No. 3-A Warner & Swasey.
- 1-No. 3 Cincinnati-Acme Univ.
- 2-No. 6 Brown & Sharpe.
- 1-No. 2-A Warner & Swasey.
- 3-3"x36" Jones & Lamson.
- 4-2-spindle Jones & Lamson.
- 1-16" Cincinnati-Acme-Fox.
- 1-14" Warner & Swasey.

Radial Drills

- 1-24' Gang Geared.
- 1-3' American.
- 3-3' Western.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 7-No. 3-A Potter & Johnston.
- 2-1"x5" and No. 33 New Britain.
- 3-No. 52 National Acme.

Vertical Boring Mills

- 1-14'-20' Niles Extension.
- 1-10' Niles; 1-72" Niles.
- 1-96" Betts.
- 1-72" Pond. 1-72" Bickford
- 1-61" Baush. 1-51" Baush.
- 1-54" Bullard. 1-51" Bullard.
- 2-48" Colburn; 1-42" Colburn.
- 2-42" Gisholt. 3-42" King.
- 1-36" Bullard, Rapid Production.
- 2-36" Gisholt. 2-32" King.
- 1-30" Gisholt. 1-30" Flather.

Horizontal Boring Machines

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- 1-5" Bar Ingersoll.
- 4-No. 1 Barrett. 2-Rock'd 2" bar.
- 1-No. 3 Barnes.

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- 1-No. 6 24" Warner & Swasey.
- 1-No. 10 3" Bardons & Oliver.
- 2-No. 8 3/4" Warner & Swasey.

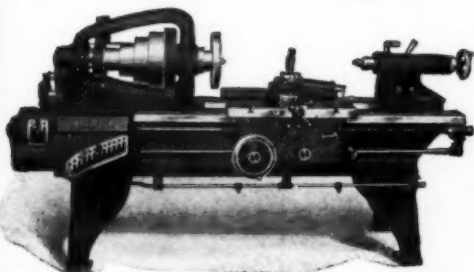
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- 1-No. 12-C Fox.
- 1-No. 12 Natco.
- 1-No. 14 Fox.
- 1-No. D-31 Fox.
- 1-No. 17 2-spindle Foote-Burt.
- 1-No. 4 6-spindle Foote-Burt.
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- 2—No. 6 Becker.
- 1—No. 5 Brown & Sharpe.
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- 1—No. 2 Cincinnati.
- 1—No. 2 Brown & Sharpe.

Milling Machines

- 1—No. 5 Cincinnati.
- 2—No. 3 Cincinnati.
- 2—No. 3 Brown & Sharpe.
- 1—No. 2-B Milwaukee.
- 1—No. 2 Brown & Sharpe.
- 1—No. 1-B Milwaukee.
- 1—No. 21 Brown & Sharpe.
- 1—No. 1 Brown & Sharpe.
- 2—No. 20—Ohio.
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- 2—No. 2-Y Brown & Sharpe.

- 1—No. 1 Kemp Smith Universal.
- 1—No. 2-B Milwaukee Universal.
- 1—No. 2-M Cincinnati Universal.
- 1—No. 3-H LeBlond Universal.
- 1—No. 3 Garvin Duplex.
- 4—Type B Briggs.
- 3—No. 33 Kemp Smith.

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- 1—24"x13"x20' Ingersoll.
- 3—24"x24"x12' Ingersoll.
- 1—36"x30"x7' Newton.
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- 1—50"x20' Ingersoll.

Planers

- 1—72"x84"x12' Gray.
- 1—60"x48"x12' N.-B.-P.
- 1—56"x56"x16' Cincinnati.
- 1—48"x48"x10' Gray.
- 1—48"x48"x16' Niles - Bement - Pond.
- 3—36"x36"x16' Cincinnati.
- 2—36"x36"x8' Ohio.
- 1—26"x26"x10' Gray.
- 2—24"x24"x6' Gray.

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- 1—No. 4 Walsh.
- 1—No. 54 Bliss. 1—No. 59 Toledo.

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Excellent Values In Machine Tools at

Partial list herewith-

CENTERING MACHINES

Centering machines, single spindle Cadillac.

ENGINE LATHES

12"x 8' Hendey, c. r. and t. a. with draw-in attachment.
12"x 8' Seneca Falls tool room.
14"x 6' Porter, compound rest and taper attachment, l. c. g.
14"x 6' Monarch, 3 step cone, d. b. g., c. r. and t. a. with draw-in attach.
16"x 8' Rockford, 3 step cone, d. b. g., c. r. and t. a., semi quick change.
18"x 8' Boye & Emmes q. c. g., s. b. g.

16"x 8' Bradford, c. r., l. c. g.
18"x 8' Cincinnati, q. c. g., taper, draw in.
16"x 8' Walcott, c. r., q. c. g.
18"x 10' Walcott, 3 step cone, d. b. g., semi quick change.
20"x 10' Walcott, 3 step, q. c. g.
24"x 20' Lodge & Shipley, q. c. g.
32"x 28' Bullard Standard Lathe arranged for variable speed mtr. dr.

TURRET LATHES AND SCREW MACHINES

1" Foster, plain head, a. c. and b. f.
No. 3 Foster g. f. h. turret screw mch., with p. f. carriage and turret.
No. 3, 14" Woods tilted turret.
No. 55 Nat'l Acme 4-spd. auto.
12" W. & S., friction head.
No. 2 Warner & Swasey, p. h., a. c. and b. f.

No. 4 Warner & Swasey, g. f. h., a. c. b. f., power feed turret.
No. 4 Warner & Swasey Friction Head, auto. chuck, hand feed.
No. 6 Warner & Swasey friction head, auto chuck, h. f. t., (2).

DRILLING MACHINES

20" Barnes Plain Lever Feed.
20" Hamilton Sta. Hd., b. g. and p. f.
20" Barnes "Camel Back".
22" Sibley Sliding Head, b. g. and p. f. with t. a.
26" Barnes Sliding Hd., b. g. & p. f.
3' Western Gear Box, single pulley drive with t. a.
4' Mueller, gear box, sgl. pulley dr.
5' American Plain with gear box belt drive.
No. 310 Baker Heavy Duty.

No. 40 Natco Straight Line Multiple Spindle Drill, 8-spindle head with two speeds in head.
No. 2 Baush Multiple Spindle with 8-1-4" spindles.
Gordon single-spindle, h. s., b. b.
12-spindle Moline, cam feed, two table.
No. 30 Natco, belt driven.
No. 34 Demco high speed bench drill with C spindle, new.
Foote Burt 1-spindle heavy duty, (2).
3' Corley Plain Arm Radial.

The Strong, Carlisle & Hammond Co.

Used and Rebuilt Reasonable Prices

Let us have your inquiries.

MILLING MACHINES

No. 6 Whitney hand, (2).
No. 1 Toledo hand millers, (2).
No. 0 Pickett, hand, bench type, (2).
No. 2 Garvin Duplex Slotter or Miller.
No. 1 $\frac{1}{2}$ Milwaukee univ. mtr. driven, dividing head, vertical and slotting attachments.
No. 6 Becker vertical.

No. 3 Cincinnati Vertical, Constant Speed Drive.
Becker 2-spindle, with rotary table.
Briggs Type "A" motor driven with motor.
No. 1 $\frac{1}{2}$ Cincinnati cone drive, plain.
No. 1 $\frac{1}{2}$ Milwaukee plain.
No. 3 Brown & Sharpe Plain, cone drive, with taper nose spindle, (3).

SHAPERS AND PLANERS

20" American cone drive, b. g.
20" Queen City cone pulley dr., b. g.
20" Steptoe cone pulley drive, b. g.
20" Hendey friction, (2).
16" Smith & Mills b. g., crank.
16" Smith & Mills plain, crank.
16" Gould & Eberhardt, back geared, crank.

18" Gould & E., b. g., crank, (2).
22"x22"x 8' Putnam planers, (2).
38"x38"x10' Pond, 2 heads on rail.
26"x30"x6' Cleveland open side one rail head, one side head, new.
48"x60"x16' Cleveland open side, two heads.

GRINDERS

30"x34" Diamond Face Grinder, belt driven.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new.
No. 6-A Bryant internal.
Webster & Perks, h. s., b. b., double spindle polishing lathes, cabinet base (6).

No. 3 Brown & Sharpe planer type
No. 11 Brown & Sharpe pl. grinders.
No. 14-46" B. & S. plain, (2).
No. 3 Modern universal.
Gisholt universal form tool grinder.
Type "DE" Hisey-Wolf internal.
C3A Grand Rapids duplex drill grinders with wet att., new.
Landis Internal, with countershaft.

MISCELLANEOUS

Arbor press, No. 3 Geier.
Boring and Turning Mill, 52" Bullard
Vertical 2 swivel heads, motor dr.
Cold saw, No. 6 Cochrane-Bly, m. d.
Hand brake, 5' Dreis & Krump.
Pipe machine, No. 300 Oster, $\frac{1}{2}$ " to 2".
Pipe machine, 8" Jarecki, No. 88.

Power Press, Max Arms S. S. Plain, 5" stroke, on inclined legs.
Slotter, No. 2 Garvin Duplex.
No. 3 Rockford plain.
Tappers, No. 2-X Garvin, (2).
Tappers, 4" Rickert-S. vertical, (2).

Cleveland, Ohio; Detroit, Michigan

Good Used Machine Tools

BARGAIN PRICES

AUTOMATIC SCREW MCHS.

- 1-3/4" Cleveland Automatic
- 1-9/16" 4 Spindle Gridley.
- 3-1 1/4-1 1/2" Clevelands
- 1-Model O. G. B. & S., M. Dr.
- 1-No. 5A Potter & Johnston
- 2-No. 6A Potter & Johnston
- 1-No. 7A Potter & Johnston

VERTICAL AND HORIZONTAL BORING MACHINES

- 4-42" Bullards, 2 hds., Motor Dr.
- 1-72" Bickford, vert. 2 heads.
- 1-No. 6C Binssee, 3 1/4" bar
- 1-Bement-Miles, 5 1/2" bar
- 1-Newton, 5" Bar.

DRILLS

- 1-20" Silver
- 1-24" Prentiss, sliding head.
- 1-Hoosier heavy duty, mot. dr.
- 1-3 Spindle W. F. & John Barnes
- 1-4 Spindle Taylor & Fenn.
- 1-3" Drees Radial, S. P. D.
- 1-4" Morris Radial.
- 1-5" Prentiss Radial.
- 1-6" Prentiss Radial.
- 1-6" Baush Radial.

GRINDERS

- 1-No. 1 Morse
- 1-No. 3 Morse
- 1-10"x36" Norton
- 1-12" Pratt & W. Vert. Surface.
- 1-No. 12 Brown & Sharpe Plain
- 1-6"x32" Norton Plain.
- 1-10"x18" Norton.
- 2-10"x24" Norton, NEW.
- 1-No. 4 Brown & Sharpe Universal
- 1-No. 16 Brown & Sharpe Plain.
- 2-No. 60 Heald
- 1-No. 3 Rivett Internal
- 1-Rivett Radius
- 1-No. 14 Gardner
- 1-No. 22 Heald vert. Rotary
- 1-No. 10 Blanchard, Motor Drive.
- 1-Sellers Tool Grinder.

LATHES

- 2-9"x14" Porter Cable.
- 1-8" Sunstrand Stub.
- 2-13"x5" Willard
- 1-14"-16"x12" LeBlond Gd. Hd.
- 4-16"x6" Porter
- 1-16"x6" Oliver, Taper Attach.
- 1-18"x6" Lodge & S. Gd. Head.

- 1-24"x12" Bradford
- 1-27"x14" L. & S., Patent Hd.
- 1-36"x14" New Haven, Taper.
- 1-26"x10" LeBlond Univ. Cr. Sh.

MILLING MACHINES

- 1-No. 0 1/2 LeBlond
- 1-No. 1 Kempsmith, Univ.
- 1-No. 2 Kempsmith, Plain.
- 1-No. 3 Kearney & Trecker Pl.
- 1-No. 3 Brown & Sharpe vert.
- 1-4 1/2"x12" Pratt & W. Thread.
- 1-No. 6 Whitney.
- 1-No. 5 Brown & Sharpe, Plain.
- 1-No. 3 Becker Vertical
- 1-No. 4 Cincinnati Vertical
- 1-No. 5 Brown & Sharpe Vertical
- 1-No. 6 Becker Vertical
- 1-No. 12 Brown & Sharpe
- 1-No. 33 Kempsmith.
- 1-Newton Slab Miller (Planer Ty.)

PLANERS & SHAPERS

- 1-14" Flather
- 1-16" Garvin
- 1-36"x8" Pond, Motor Drive
- 1-36"x36"x16" Woodward, 4 hd.
- 1-36"x36"x18" Cincinnati
- 1-60"x60"x16" N.-B.-P. 2 hds.
- 1-84"x56"x16" Gray

PRESSES-POWER

- 1-No. 18 Stiles & Parker.
- 1-No. 5D Standard
- 1-155lb. Bradley-Helve Hammer.
- 1-300lb. Bradley-Helve Hammer.
- 1-500 Ton Mesta Hydraulic.
- 1-No. 6 Beaudry Hammer

SCREW MACHINES AND TURRET LATHES

- 1-No. 1 Warner & Swasey
- 1-No. 2 Southworth.
- 1-No. 3 Foster
- 2-21" Gisholt
- 1-3"x36" Jones & Lamson
- 1-24" Gisholt

MISCELLANEOUS

- 4-Bilton Gear Cutters.
- 1-2 1/4" Acme Bolt Cutter.
- 1-No. 14 Pratt & Whitney Prof.
- 1-Leland-Gifford Profiler.
- 1-Newton Cold Saw
- 1-Keller Die Sinker E-4.
- 6-No. 3 26" B. & S. Gear Cutters
- 1-No. 4 Stoeber Pipe Machine.

If the machines you need are not herein listed send us your requirements. We can fulfill your needs.

WIGGLESWORTH MACHINERY CO., 170 Summer St., BOSTON, MASS.

EXCELLENT TOOLS

SHAPERS

15", 24", Potter & Johnston.
16", 20", 24", 30" Gould & E.
10 other sizes.
26" Openside.
26x7" Cincinnati trav. head, 1 head.

DRILLS

Baker 310, 513.
Minster 28", 24" capacity.
F. B. Co. 20", 24", 36", 48".
F. B. Co. Rail 1 1/2, 2, 3, 4, No. 15 1/2.
Bausch Multiples Nos. 2, 3, 4.
P. & W. Nos. 11, 12, 13.
Natco Nos. 13, 14, 30.
Moline—we have ten.

RADIAL DRILLS

Prentice 3', 4', 5', 6' gear box.
American 4', 6' gear box.
Bickford 3', 4', 5', 6'.
Dreses 3', 4', 5', 6'.
Cincinnati-Bickford 4', 5', 6'.
Mueller 3', 4'.
Bausch 5', 6', 10'.

PLANERS

60"x24"x12' 2 head Frog switch, b.d.
60"x60"x14' 4 head Putnam.
24"x24"x 6' Gray.
24"x24"x 5' Cincinnati.
30"x30"x 8' W. & P. 2 heads.
30"x30"x 6' N.-B.-P. 2 heads.
24"x24"x 8' 26"x28"x5' Cinti. 1 hd.
42"x42"x30" N.B.P. 4 hds., rev. mtr.
42"x42"x12' W. & P. 4 heads.
48"x48"x26' W. & P. 4 heads, m. d.
27"x 8' W. & P. 1 head.
32"x10' W. & P. 2 heads.
30"x10'-8'; 42"x16'; 36"x12'-8'; 48"x16';
48"x84"x20'; 96"x72"x24' D. & H.
Open Side.
Cleveland Openside 30"x12'; 36"x
12'; 36"x48"x10'; 72"x20'.

LATHES

48"x30' Johnson, triple grd., new.
50"x16' Niles triple geared.
48"x30' Bridgeford grd. hd., m. d.
42"x14', 42"x28' Bridgeford g. h.
36"x17' Pond triple.
30"x18', 24"x14' Johnson grd. hd.
36"x14' Bridgeford.
18", 20", 24" LeBlond.
12", 14", 16", 24" Hendey.
18"x10' Johnson geared head.
90" Lathe 20' centers, belt drive.
48"x72"x14', 16"x32"x8' Harr. gap.
18"x36"x10' Putnam gap.
26"x48"x14'-28'-32" McCabe.
26"x48"x12' McCabe taper.

GRINDERS

Norton 10x50, 10x72, 14x72, 18x76.
Landis 12x96.
Surface, 12" and 14" P. & W.
Surface, No. 2 Brown & Sharpe.
Surface, Nos. 2 and 3 Diamond.
Face, Diamond 30"x84" (3).
Cutter, Cinti. Oakley, B. & S. LeBl.
Tool, Gisholt.

PUNCHES AND SHEARS

No. 5 H. & J. 56", single end, m. d.
72" H. & J. Punch, 1 1/2"x1 1/2".
60" Massillon single end 1 1/2"x1".
48" Whiting single end 1 1/2"x1".
36" H. & J. No. 3 single end 1 1/2"x1".
30" L. & A. No. 4 single end 1x1".
4" Lennox Bevel Shear.
4" and 6" Lennox Splitting Shears.
4" Kling Universal Plate Shear.
Quickwork No. 3, 36" Rotary (2).
Quickwork No. 4, Rotary Shear
with 48" circle attachment.

BENDING ROLLS

26' for 1 1/2" plate; 25' for 1 1/2" plate.
16' for 1 1/2" plate; 14' for 1 1/2" plate; 7' for
1 1/2" plate; 8' for 1 1/2" plate, 8", 1", 10"
—4" plate.

SHEARS

Alligator type 2", 3", 4".
Bar type 2", 3", 4".
15 Power Squaring Shears.
Angle 6"x6", 8"x8".
McCabe 1/2" Flanger.

BORING MILLS

30" King, Bullard, Gisholt Turret.
24", 36" Bullard Rapid Production.
24", 36", 42" Bullard New Era.
36", 42", 52" Gisholt; 40" King.
42", 60" Colburn.
37", 42", 53", 44" N. B. P.
56" Bullard Maxi-Mill Vertical.
60", 72", 84", 96", 120" N. B. P.
25' Sellers 2 heads, motor.
14' Niles-Bement-Pond.

MISCELLANEOUS

Bolt Cutters, 1", 1 1/2", 2", 2 1/2".
Forging Machines, 1 1/2", 2", 3", 4", 8".
Gate Shears, 96" 1/2" plate; 10' 1/2"
plate; 96" 5/16" plate.
Plate Planers, H. & J. No. 2-3-16';
Niles 16'-19".
Turret Lathes, Gisholt, Foster,
Libby, Warner & S., Gridleys.

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High Grade Machine Tools

Boring Mills

- 1—Bullard 42" Vertical.

Broaches

- 1—LaPointe No. 4 Hydr. D.M.D.
- 1—LaPointe No. 3 M. D.

Drills

- 3—Avey Nos. 1½ H. S. S. S.
- 4—Sipp 16" High Speed S. S.
- 2—Acme 6D Semi-Auto. Drilling.
- 1—American 26" S. S.
- 7—Aurora 21-24" S. S.
- 2—Barnes Camel back 24".
- 1—Barnes 26" Tapping att.
- 1—Cincinnati Bickford.
- 1—Mechanics 24".
- 6—Cincinnati 21-26" S. S.
- 1—Rockford 21" sliding head.
- 1—Leland-Gifford 10" H.S., Sens.
- 1—Minster D No. 1.
- 3—Superior 20"-26" S. S.

Drills—Multiple

- 1—Avey No. 1½ 2-sp. High Speed
- 1—Kingsbury 4-sp. Horiz. D.M.D.
- 1—Rockford, 4-spindles.
- 1—No. 2 Edlund High Speed.
- 1—Pratt & Whitney 12-spindle.

Gear Shapers

- 7—Fellows No. 6 and 36".

Grinders

- 18—Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72.
- 13—Heald Int. Nos. 60-65-70-75.
- 1—Besly No. 14 Disc.
- 1—Besly No. 6 Dbl. End. Auto.
- 1—Gardner Disc.
- 1—Brown & Sharpe Universal.
- 2—Rivett No. 205 Radial.
- 1—Rivett Univ. No. 6 Internal.
- 2—Landis No. 3 Universal.
- 1—B. & S. No. 11 Plain Ext.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 1—Besly No. 17 double end.

Lathes—Engine—Miscellaneous

- 1—Hamilton, 16x6, B. G., Q. C.
- 5—Lodge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.
- 1—Sidney 20x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B.G., Q. C.
- 5—Greaves & Klusman 18x6, 18x8, 30x8, B. G., Q. C.
- 3—Chard 16x6&24x11 B.G., Q.C.
- 1—L. & S. Duplex 12x24" Cr. Pin.

- 4—American 14x6, 16x6, 18x8 B. G., Q. C.

- 1—G. & L. 18x8 B. G., Q. C.
- 1—Sidney 14x6" B.G., Q.C., T.A.
- 1—Bradford 16" B.G., Q.C., T.A.
- 1—Monarch 16x6 B. G. Q. C.

Lathes—Turret and Screw Mchs.

- 2—Foster No. 1-B—20" swing.
- 2—Gisholt No. 2, D. M. D.
- 2—Gisholt No. H21.
- 1—Warner & Swasey No. 6.
- 2—Millholland 1" & 1½" D. M. D.
- 2—Pratt & Whitney 20".
- 1—B. & O. No. 4.

Milling Machines—Vertical

- 2—Becker No. 5 and No. 6.

Milling Machines—Horizontal

- 1—Milwaukee No. 3B Double overarm, Vertical Head.
- 1—No. 2 Cincinnati Universal.
- 1—Hendey No. 2 Universal.
- 1—Van Norman No. ½.
- 2—Brown & S. No. 2B and 12.
- 1—Steptoe Hand with Vert. Att.
- 6—Whitney No. 6 Hand.
- 1—Garvin No. 14.
- 5—Standard Hand.

Milling Machines—Slab

- 1—Ingersoll 30x30x10", 3 heads.

Saws

- 1—Peerless 6x6.

Screw Machines—Automatic

- 1—New Britain No. 24 Mult. spdl.
- 4—Gridley ¾" 4-spindle.
- 1—Cleveland 2" S. S.
- 6—National Acme Nos. 51, 53 and 55 Multiple spindle.

Shapers—Crank

- 2—Steptoe 16".
- 1—Lodge & Davis.

Tappers

- 2—Garvin Vertical.

Welding Outfits

- 1—Thompson Elec. Type 101 Butt.
- 3—Toledo Spot; Federal Spot; Type B Arc.

Miscellaneous

- 1—Crescent Rip and Cross Cut saw table and 5 H. P. motor.
- 1—190 H. P. Synchronous motor.
- 3—Generator Sets.
- 1—Baird No. 2 Coiling & Cutting.

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1959 S. Meridian St., Indianapolis, Indiana

These Tools Are Taken From Our Own Shop and In Excellent Condition—

1—23"x24"x6' GRAY Single Head Planer.....	\$ 500.
1—No. 615 FELLOWS Gear Shaper, capacity 35" pitch diameter, 4 pitch, 5" face and internal 25" pitch diameter, 4 pitch, 3" face, with 20 cutters.....	1500.
1—BROWN & SHARPE Gear Cutter, No. 3, 26".....	250.
1—BROWN & SHARPE Gear Cutter, No. 3, 36".....	325.
1—CINCINNATI Gear Cutter 32".....	275.
1—SCHUCHARDT & S. Gear Tooth Rounder, 12" cap.....	100.
1—MARVEL High Speed Hack Saw, 6" Vise.....	75.
1—STEPTOE Hand Miller.....	50.
1—LANDIS Internal Grinder, 10" chuck with Excello High Speed Spindle, 10,000 R. P. M.....	200.
1—CINCINNATI Universal Tool Grinder.....	175.
1—16" Raised Lathe with Oil Grooving Attach. for bushings.....	100.
1—12"—5' Lathe for polishing.....	25.
1—18"x18' CISCO Three Step Double Back Geared Engine Lathe, Quick Change with all regular equipment (used for leadscrews).....	700.
2—18"x8' CISCO Three Step Double Back Geared Engine Lathes complete with all regular equipment, taper attachment and pan.....each	600.
1—18"x8' CISCO Geared Head Engine Lathe complete with all regular equipment, pan, four-way turret Tool Post.....	750.
1—16"x6' CISCO Three Step Double Back Geared Cone Head Lathe with all regular equipment, pump, pan and automatic long and cross stops.....	450.
1—16"x6' CISCO Geared Head Engine Lathe with pan, pump and all regular equipment.....	625.
1—16"x8' CISCO Four Step Single Back Grd. Cone Head Engine Lathe with pan, pump and all regular equipment.....	400.
2—14"x6' CISCO Four Step Cone Head Single Back Geared Engine Lathes complete with all regular equipment, pan and pump.....each	350.
1—14"x8' CISCO Four Step Single Back Geared Cone Head Engine Lathe complete with all regular equipment, taper attachment, pan and pump.....	450.

All prices are f. o. b. our plant

Terms:—one-third cash with order, balance sight draft.

The Cisco Machine Tool Co.
1767 Elmore Street, Cincinnati, Ohio

To Machinery DEALERS and Users

We have a desirable lot of NEW and USED tools, some thoroughly rebuilt and in fine condition, others "As is" but in running order, all of which we wish to move quickly at interesting prices. Write or see us regarding this stock, which is on display in our Cincinnati warehouse. This lot is as follows:

NEW TOOLS

- No. 2 Edlund Double Column Upright Drill.
- No. 2 Wood Tilted Turret Lathe, friction geared head.
- No. 4 Wood Tilted Turret Lathe, friction geared head.

USED TOOLS

LATHES

- 18"x8" "American," Single Back Gear.
- 24"x10" "American" Heavy Pattern, Double Back Gear.
- 16"x8" Hamilton, Single Back Gear.
- 18" Gisholt Turret, Cone Drive, (2).
- 2 1/4"x24" Jones & Lamson Flat Turret, Geared Head

PLANERS

- *42"x36"x26" "American" 4 Heads.
- *48"x48"x26" "American," 4 Heads.
- 72"x60"x31" Pond, 2 Heads.

DRILLS—MULTIPLE SPINDLE

- No. 2 Bausch High Speed, with eight 2" spindles.

DRILLS—RADIAL

- *3" "American" Sensitive.
- *4" 4" "American" Sensitive.
- 4" Bickford, Cone Drive.
- *5" Niles-Bement-Pond, round column, semi-universal, S. P. D.
- 5 1/2" Pond, Cone Drive.
- 6" Prentice, Cone Drive.
- *7" Bickford, Triple Geared, Single Pulley Drive.

SCREW MACHINES

- 2 1/8" Gridley Single Spindle Automatic, motor driven.
- No. 54 National Automatic.

THREAD MILLER

- No. 12 Leea-Bradner Thread Milling Machine, belt drive, capacity 10" diameter, 8'6" long, (95% new).

MILLING MACHINE

- No. 40 Becker-Brainerd Duplex.

GRINDERS

- No. 10 Bryant Semi-Automatic Hole Grinder.
- No. 22 Brown & Sharpe Internal Grinder.

GEAR CUTTERS

- No. 3 Brown & Sharpe Automatic (for gears up to 26"x8") (3).

SLOTTER

- 48" Bement Heavy, motor driven (almost new).

MISCELLANEOUS

- No. 3-B, J. N. LaPointe Broaching Machine.
- (*) Can be motor driven.

The American Tool Works Company

Cincinnati, Ohio, U. S. A.

Builders of Highly Productive Lathes, Radials, Shapers

25" Niles-Bement-Pond Lathe.
22"x10' Davis Lathe.
20" Whitcomb Lathe, Q. C., Geared Head.
18"x10' Sidney Lathe, Quick Change.
14"x 8' Sidney Lathe, Quick Change.
26/48"x14' McCabe "2-in-1" Lathe.
36"x12' Geared Head Quick Change Lathe.
50"x24' Bement-Miles Lathe.
40"x16' Geared Head Quick Change Lathe.

24" Cincinnati B. G. Shaper.
16" Steptoe Shaper.

No. 3 Hendey Milling Machine.
No. 5 Hendey Lincoln Mfg. Type.
No. 5 Brown & Sharpe Vertical.

4' Arm Carlton Radial Drill.
3' Arm Carlton Speedy-Sensitive.
2½' Arm Carlton Radial Drill.
Drill Presses—14 to 28".

8' Betts Boring Mill.
Horizontal Boring Mills 2½ to 5" bar

84"x60"x30' Planer 4 heads.
72"x72"x24' Niles Planer.
60"x60"x20' Gray Planer, 3 heads.
48"x48"x14' Pond Planer, 2 heads.
26"x26"x 6' Niles Planer, 1 head.

10' Bending Rolls.	36", 42", 50" & 60"
100 Ton Wheel Press.	Punch and Shears.

Gear Cutters, Grinders, Saws, Etc.

J. J. McCabe Lathe & Mchy. Corp.
149 Broadway, New York City

Used Machine Tools Values at Prices That Give Satisfaction

- B-2184—Williams & White No. 5 Bulldozer, with steam engine.
 B-1967—Bertsch Class D Single End Punching Machine, 24" throat.
 B-2077—Kling Bros. No. 1 Horizontal Punch, 7" throat.
 B-2036—Verdin-Kappes-Verdin No. 4 Inclinal Press.
 B-1302—Mossburg & Granville No. 4-B Inclinal Fly-Wheel Press.
 B-2968—Toledo No. 3 Plain Fly-Wheel Inclinal Punch Press.
 B-2969—East Iron & Machine Co. Plain Fly-Wheel Punch Press, 5" str.
 B-884—Toledo No. 25 Upright Press, Plain Fly-Wheel Type.
 B-2889—Loahbough-Jordan No. 1 Open Back Inclinal Punch Press.
 B-2880—EMCO W Bench Plain Fly-Wheel Punch Press, $\frac{3}{4}$ " stroke.
 B-2663A—Robinson Lever Punch on legs, 18" throat.
 B-2094—Geo. C. Keene 10' Double Toggle Press Brake.
 B-1998—Geo. C. Keene 4' Hand Brake, for 18 gauge.
 B-2257A—Robinson 6' Hand Geared Brake for 14 gauge metal.
 B-2258A—Robinson 4' Light Pattern Toggle Press.
 B-2048—Heinas Power Folder or Brake, cap. 10 gauge.
 B-2269—Robinson No. 2 Hand Screw Press on legs, 6" throat.
 B-2500—D. H. Stoll Co. Power Squaring Shear Type 336, for 10 gauge.
 B-2076—Wangler Rotary Bevel Shear, for $\frac{3}{4}$ " plate.
 B-2082—Rock River Geared Power Splitting Shear, for $\frac{1}{2}$ " plate.
 B-2252A—Robinson Lever Combination Punch & Splitting Shear.
 B-2255A—Robinson Hand Lever Slitting Shear No. 57.
 B-2081—Optenburgh 8" Hand Flanging Clamps for flanging $\frac{3}{8}$ " plate cold.
 B-2587—Middleditch Sprue Cutter No. V40.
 B-2511—E. J. Manville Mfg. Co. Bench Foot Press.
 B-1968—Hendley & Whitemore "Beloit" Initial Type 62" Bending Rolls.
 B-1692—Bending Rolls having three rolls approx. $4\frac{1}{4}$ " dia.
 B-2411—Bessemer 50 H. P. 2 cycle Gas Engine, 180 R. P. M.
 B-2230—Bossert Die Slotting Machine, with 12" round work table.
 B-2055—New Haven 10" Crank Slotting Machine, 24" throat.
 B-1461—Potter & Johnston No. 3 Mfg. Lathe.
 9790—Pratt & Whitney No. 12 Profiling Machine.
 B-3006—Shuster $\frac{1}{2}$ " Wire Straightening and Cutting Machine.
 B-1594—Shuster $\frac{1}{4}$ " Riveting Machine.
 B-988—John Adt & Son Riveting Machine, $\frac{1}{4}$ " cap.
 B-2361—Miller Improved 65 H. P. 2-cylinder Horizontal Gas Engine.
 B-2438—Whiton 84" bed Double End Centering Machine.
 B-2545—Garvin No. 1 2-spindle Tapping Machine.
 B-1743—United Trip Hammer No. D-125 lb. for belt drive.
 B-2555—Little Giant 50-lb. Power Hammer for belt drive.
 B-2994—Cincinnati High Speed Tapping Machine, cap. $\frac{3}{8}$ " pipe tap.

Write for new 50 page booklet listing and pricing several hundred items of Lathes, Milling, Grinding, Buffing, Drilling, Punching, Shearing and Miscellaneous Machines.

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BRANCHES: INDIANAPOLIS, IND. HAMILTON, OHIO. DAYTON, OHIO.
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A MESSAGE TO OUR FRIENDS

The past year with its many new customers has shown a gratifying increase in our business, and now as we pass another mile post, another year is confronting us with its hopes and opportunities to serve you. We come to you prepared, carrying an enormous stock of guaranteed tool room machinery. We assure you that our company is a source of supply on which you can depend as our many customers will testify.

We Offer

LATHES

- 36"x24" Schumaker & B. q. c. g.
- 18"x8" Davis Tool Room.
- 14"x6" Reed Prentice, geared hd.
- 14"x6" Lodge & Shipley grd. hd.
- 14"x6" Hamilton q. c. g.
- 14"x6" Springfield, semi-q. c. g.

GRINDERS

- No. 1 Wilmarth & M. Tool Cutter.
- No. 33 Abrasive Surface.
- No. 254 Heald Rotary Surface.
- No. 220 Badger Disc.
- No. 5 Landis Cylinder.

MILLERS

- No. 3 Brown & Sharpe Plain.
- No. 2B Hendey Plain.
- No. 13 Garvin Plain.
- No. 1½ Garvin Universal.
- No. 1 Dow Plain.
- No. 2½ LeBlond Plain.
- No. 25 Becker Plain.
- No. 3½ Fox Hand.

TURRET LATHES

- No. 2 Wood Turret.
- No. 4 Milholland friction grd. hd.
- No. 4 Acme friction geared head.

SHAPERS

- 28" Rockford b. g. cone drive.
- 24" Smith & Mills, b. g. cone dr.
- 20" American b. g. heavy duty.
- 20" Milwaukee, double, back grd.
- 18" American b. g. cone drive.
- 16" Cincinnati b. g.
- 16" Cincinnati single geared.
- 16" Smith & Mills single geared.
- 14" Rockford single geared.
- 13" Smith & Mills single geared.

DRILL PRESSES

- 5' Bickford Radial s. p. d.
- 2½' American Radial s. p. d.
- 5-spindle Allen Hi-Speed.
- No. 1 Avey Hi-Speed.
- Model F Mason Hi-Speed, b. b.
- No. 25 Foote-Burte heavy duty.
- 22" Weigel b. g. tapping att.
- 21" Canedy Otto b. g. power fd.
- 14" Canedy Otto direct motor dr.

BORING MILLS

- 60" Bausch, 2 swivel heads.
- 42" Gisholt, 2 heads.
- 24" Bullard, single head.
- 24" Colburn, single head.

Also a Large Unlisted Stock

"Tool Room Machinery Our Specialty"

Central States Machinery Co.

134 South Clinton Street

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Tools in Excellent Condition

at Reasonable Prices

- 1—16x8 Hendey Lathe, pan bed, taper attach, drawing in collets, serial No. over 21000.
- 3—16x8 Hendey Lathes pan bed, taper attach, drawing in collets serial No. from 10000 to 20000.
- 1—14x6 Hendey Lathe, pan bed.
- 1—12x5 Hendey Lathes pan bed, taper att., about 20000 serial number.
- 1—30x10 Niles Bement & Pond Lathe, motor drive without motor.
- 1—20x6 Reed Prentice geared head, motor drive with A. C. Motor, H. D.
- 1—30" Bullard Boring Mill.
- 1—No. 6 Becker Vertical Miller.
- 2—No. 2 Cincinnati Universal Millers, cone pulley drive, fully equipped.
- 2—No. 5-B Becker Vertical Millers.
- 1—No. 3 Cincinnati Plain Milling Machine.
- 1—No. 5 Brown & Sharpe Vertical Milling Machine.
- No. 1 Brown & Sharpe Universal Milling Machine.
- 1—No. 1A Milwaukee Milling Machine, single pulley drive.
- 1—No. 2 La Pointe Double Spindle Broaching Machine.
- 1—No. 24 New Britain Chucking Machine.
- 10—Four, three, two Spindle Barr Sensitive Drills.
- 1—Gardam 12 Spindle Multiple Drill.
- 1—Gardam 8 Spindle Multiple Drill.
- 2—Two Spindle Leland Gifford High Speed Drills.
- 2—Single Spindle Leland Gifford High Speed Drills.
- 1—Single Spindle Avey High Speed Drill.
- 3—24" Barnes Sliding Head Drill Presses.
- 1—Two Spindle Sipp with Power feed, High Speed Drill.
- 1—No. 2 Wilmarth & Marmon Universal Cutter & Reamer Grinder.
- 1—No. 2 Landis Universal Grinder.
- 1—No. 2 Brown & Sharpe Universal Grinder, very late model, like new.
- 1—No. 70 Heald Grinder.
- 1—6x32 Norton Cylindrical Grinder.
- 1—3x36 Brown & Sharpe Gear Cutter, motor drive.
- 2—No. 16 Whiton Spur and Bevel Gear Cutters.
- 2—No. 6—60" Brown & Sharpe Spur Gear Cutters.
- 1—1½" capacity Landis Bolt Cutter.
- 1—4" Little Giant Pipe Machine.
- 15—No. 18 Bliss Power Presses.
- 9—No. 19 Bliss Power Presses.
- 2—No. 4 Toledo Inclined Power Presses.
- 1—No. 6 Zeh & Hahnemann Inclined Power Presses.
- 1—No. 8 Zeh & Hahnemann Percussion Press.
- 1—No. 5 Styles Back Geared Power Press.
- 1—No. 30 Bliss Arch Press.
- 1—No. 20 Bliss Press, Inclined.
- 1—No. 55 Swaine Styles Punch Press, back geared.
- 2—No. 2 Foster Back Geared power feed Turret Lathes.
- 1—21" Gisholt D. C. Variable Speed Turret Lathe.

Every Machine Is Fully Guaranteed

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Bath-Cleveland

BORING MILLS

4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 6 $\frac{1}{2}$ " bar Niles floor type, hor.
4" bar Bement table type, hor., m.d.
3 $\frac{1}{2}$ " bar Rochester.
44" Bausch, belt drive.
51" Niles-Bement-Pond, s. p. d.
60" Gisholt, arranged motor drive.

72" Sellers, arranged motor drive.
10-16" Niles & Bement-Miles ext.
16-24" Niles extension type.
12" Betts heavy duty; 14" Niles.
52" Gisholt vertical, r. p. t.
96" Betts vertical, geared feed.

DRILLS

6' American triple purpose.
6' Pond radial.
21" Cincinnati-Bickford, sliding hd.
22" Barnes, sliding head.
24" Silver, sliding head.
24" Superior, sliding head.
23" Rockford, stationary head.

3-sp. Henry & Wright b. b., sens.
4-spindle Barnes.
4-spindle Foote-Burt.
6-spindle Moline cylinder borer.
8-spindle No. 11 Natco.
20-spindle No. 6 Fox multiple.
No. 25 Foote-Burt heavy duty.

FORGING, BOLT AND NUT MACHINERY

1", 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 3", 3 $\frac{1}{2}$ ", 4" & 5" Acme
and Ajax upsetters.
1 $\frac{1}{2}$ " & 2" Waterbury-Farrel D.S.O.D.
cold headers.
1 $\frac{1}{2}$ "x3" Manville & 1 $\frac{1}{2}$ "x4" Waterbury-
Farrel S. S. D. cold headers.
1 $\frac{1}{2}$ " W.-F. cold pressed nut machines.

1" Acme 6-sp., semi-auto nut tapper.
1" Rickert-Shafer tapper.
Nos. 1 & 6 Williams-W. bulldozers.
1" Shuster wire straightener.
1 $\frac{1}{2}$ " Landis 3 head bolt cutter, motor
drive.
5/16" four-slide wire formers.

GRINDERS AND GEAR CUTTERS

10"x24": 10"x52" Landis self-cont.
20"x144" Norton, very good.
20"x32"x144" Norton, like new.

10"x22" Greenfield cutter grinder.
No. 2 Gardner b. b., disc.
72" G. & E. gear cutter, arr. m. d.

LATHES AND TURRET LATHES

16"x 8" Monarch, quick change.
17"x 8" Sidney, quick change.
18"x 8" Prentice g. h., q. c.
42"x30" centers L. & S. q. c., sel. hd.

No. 1B Foster universal turret.
3"x36" Jones & Lamson, grd. hds.
18" Libby geared heads.
24" Gisholts, belt and motor drive.

MILLING MACHINES AND KEYSEATERS

Type B Briggs, Lincoln 54x11 $\frac{1}{2}$ " tbls.
20"x7"x18" Oesterlein plain.
No. 0 Rockford, 30"x7 $\frac{1}{2}$ " table.
No. 1 Kemp Smith 22"x8"x19" plain.
No. 3 Brown & Sharpe, vertical.

No. 6 Becker vertical.
Model B Becker vertical.
38"x10" Newton duplex miller.
No. 2 Baker Bros. keyseater, auto-
matic feed.

PLANERS AND SHAPERS

42"x48"x14" D. & H. o. s., rev. m.d.
48"x96"x20" D. & H. o. s., extra hous.
48"x72"x22" D. & H. o. s., extra hous.
48"x48"x16" Cincinnati, 4 heads.
72"x72"x20" Pond 4 heads.

72"x72"x20" Ridgway, 4 heads.
96"x96"x16" Pond, 4 heads, belt dr.
96"x96"x18" Ridgway, motor drive.
36" Morton draw cut shaper.

PUNCHES AND SHEARS

48" throat Bement-M. punch. 1 $\frac{1}{2}$ -1".
2" Garrison steel bed alligator sh.
1" Niagara circle shear.

Scully splitting shear.
10"x5/16" Ohl bend. brake, arr. m.d.

MISCELLANEOUS

Blowers, Nos. 1 & 2 Buffalo Forge.
Cold Saw, No. 4B Cochran-Bly,
motor drive.
Hammer, 100 lb. Bradley helve.
Pipe machine, 4" Oster.
Press, Arbor, No. 3 $\frac{1}{2}$ Greenerd.
Press, 4" stroke Excelsior s. s.
Press, No. 5 Consolidated inclinable.

Press, 400 ton Niles wheel., 96".
Profiler, No. 3 Garvin.
Riveter, 30 ton Hanna, 6' gap.
Riveter, 36"x20" Allen, 1" cap.
Rolls, Reclaiming, Ajax, with
Rockwell furnace.
Slotters, 20" and 36" Bement crank.
Slotter, 48" Niles-Bement-P. grd.

CYRIL J. BATH & COMPANY

6986 Machinery Ave.

Cleveland, Ohio

Cable Address: BATHCO—Cleveland

All In Chicago Stock

TURRET LATHES

No. 4 Warner & Swasey Universal Turret Lathes. | 8" and 10" Cleveland Automatics.
24" Steinle, Rapid Traverse. | No. 4 Bardons & Oliver.

BORING MILLS

44" Putnam 2 heads, m. d. | 30" Colburn turret head.

DRILLS

3 1/2" Cincinnati Bickford Radial Gear Box Drive. | No. 13 Pratt & Whitney 16 spindle.
Rebuilt 3 1/2", 4", 5" Western Radials. | No. 2 Colburn Mfg. Drill.
20" Barnes, all geared. | 3 spindle Colburn No. 2 Mfg. Drill.
24" Rockford, sliding head. | 3 spindle Avey Ball Bearing.
25" Barnes, stationary head. | 4 spindle Avey Ball Bearing.
1, 2, 3 and 4 spindle Allen Ball Bear.

MILLING MACHINES

No. 2-B Kearney & Trecker, plain. | No. 3 B. & S. grd. hd., a. c., m. d.
No. 2 1/2-B Kearney & Trecker, vert. | No. 2 B. & S. plain cone head, verti-
U. S. Hand Miller. | cal attachment.
No. 3 Kempsmith plain, cone head. | No. 28 Ohio plain, cone head.
No. 1 Kempsmith plain, cone head. | No. 33 Kempsmith Prod. miller.
No. 1 1/2 Brown & Sharpe plain cone | No. 3 Cincinnati plain Hi Power
head. | 18" Cincinnati automatic.

LATHES

12"x5" Hendey, q. c., taper att. | 16"x8" Cincinnati, q. c.
14"x6" American, q. c. | 18"x5" Sebastian a. c., m. d.
14"x8" Rockford, q. c., (new). | 18"x8" Boye & Emmes, q. c.
14"x6" Flather, q. c. | 18"x10" Boye & Emmes Taper att.
16"x8" Monarch, quick change. | 20"x8" American Heavy Duty, q. c.
16"x8" Rockford, q. c., (new). | 21"x8" LeBlond Heavy Duty.

SHAPERS

16" Rockford, cone. | 24" Columbia, single pulley (new).
20" Columbia, single pulley, (new). | 24" Gould & Eberhardt cone.
20" Gould & Eberhardt, cone. | 25" Smith & Mills cone.
24" Rockford, b. g.

MISCELLANEOUS

1" Landis Bolt Cutter. | No. 12 Barber-Colman Gear Hob.
8" Landis pipe machine. | No. 6-36" Fellows Gear Generator.
4" Oster, (new). | New Federal Presses, all sizes.
6x6 Hack Saws. | 68N Bliss Double Action.
No. 3 Reynolds Screw Driver.

USED MACHINERY DEPT.

Manning, Maxwell & Moore, Inc.
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REBUILT TOOLS

AUTOMATICS

14" Bullard Mult-Au-Matic.
 $\frac{1}{2}$ ", 1 $\frac{1}{2}$ " and 2 $\frac{1}{2}$ " Gridley 4-spindle.
 1" and 1 $\frac{1}{2}$ " New Britain.
 5A and 6A Potter & Johnston.
 14" Fay, Flanders type.
 53, 55 and 56 National Acme.

BROACHES

2—No. 4 OILGEAR hydraulic.
 2—No. 3 American Rack type.
 No. 4 LaPointe Hudson.
 No. 3B J. N. LaPointe.

DRILLS—Radial

3' American.
 3 $\frac{1}{2}$ ' Morris.
 4' Hammond.
 5', 6' and 8' Western.
 6' Niles-Bement-Pond Universal.

GEAR CUTTERS

12" Gould & Eberhardt Hobbers.
 No. 12 Barber Colman.
 16" Cincinnati Hobber.
 No. 5A Lees-Bradner.
 18" Gould & Eberhardt Hobber.
 24"—36" Gould & E. Hobber.

GRINDERS

6"x18" Landis.
 6"x32" Norton.
 8"x18" Modern.
 10"x24" Landis.
 10"x36" Norton.
 10"x52" Landis.
 12"x36" Cincinnati.
 12"x72" Landis.

LATHES

14"x 6' Cisco Geared Head.
 16"x 6' Cisco Geared Head.
 16"x 7' South Bend.
 16"x 8' Cisco Geared Head.
 18"x 8' Monarch.
 18"x 8' Cisco Geared Head.
 20"x 8' LeBlond.
 20"x 8' Cisco Geared Head.
 20"x10 $\frac{1}{2}$ ' Cisco.
 24"x 12' Bradford.
 27"x 12' Boye & Emmes.
 32"x 14' Schumacher Boye.
 36"x 16' Johnson.
 36"x 18' Schumacher Boye.
 48"x 20' New Haven.
 52"x 16' Pittsburgh.

MILLS—Horizontal Boring

2 $\frac{1}{2}$ " bar, No. 1 Cleveland.
 3" bar, No. 3A Universal.
 3" bar, No. 9 Fondick.
 6" bar, Pedrick Floor Type.
 6" bar, Gray.

MILLS—Vertical Boring

24" Bullard New Era.
 36" Bullard Rapid Production.
 36" Niles.
 42" Bullard.
 42" Detrick & Harvey.
 50" Bickford.
 84" Niles.
 96" Betts.
 120" Niles.

MILLERS

No. 4 Cincinnati single pulley dr.
 No. 3 Kempsmith.
 No. 3 Brown & Sharpe.
 No. 2B Heavy Brown & Sharpe.
 No. 2 Cincinnati.
 No. 1 $\frac{1}{2}$ Rockford.
 No. 1 $\frac{1}{2}$ Brown & Sharpe.
 No. 1 $\frac{1}{2}$ A Milwaukee.

MILLERS—Production

24" Cincinnati Duplex.
 12" Cincinnati Plain Mfg.
 40" Ohio Tilted Rotary.
 28"x24"x6' Ingersoll.
 36" Ingersoll Rotary Table.
 34" and 42" Briggs Type B.

PLANERS

30"x30"x 8' Cleveland openside.
 30"x30"x12' Cleveland openside.
 32"x32"x12' Niles.
 36"x36"x10' Cincinnati.
 36"x36"x12' Woodward & Powell.
 36"x36"x12' Cincinnati.
 42"x36"x16' Cleveland openside.
 42"x42"x12' Cleveland openside.
 48"x48"x10' Liberty.
 60"x48"x16' G. A. Gray.

SHAPERS

15" Potter & Johnston Universal.
 16" Springfield.
 20" Hendey.
 20" Steptoe.
 24" Gould & Eberhardt.
 24" Kelly.
 25" Springfield.
 28" Columbia.
 30" Walcott.
 36" Morton Draw Cut.

THREADERS

1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ " & 3" Acme.
 1" Foote Burt 2 spdl., Landis hds.
 2" Acme 2 spindle.
 2" Landis 2 spindle.
 1" National.
 $\frac{1}{2}$ " Webster & Perks.

Miles Machinery Co., **SAGINAW, W. S. MICH.**

Attractive Prices To Move Stock

- BORING MILLS:**----- Betts Horizontal Table Type Mill, 4 $\frac{7}{8}$ " bar.
D. & H. Horizontal Floor Borer 5" bar.
Gisholt 72" Vert., M. D.
Betts 7/10" Vertical; Sellers 25" Vertical, M. D.
- DRILLS:**----- No. 124 Buffalo Post.
14" Rockford, 24" Foote-Burt.
2" Foadick, 3" Bickford, t. a.
Natco No. 10 C-12 Spindle, No. 1 M. T.
Moline 10-spindle, No. 5 Morse taper.
Baush Multiple Drill, 12-spindle.
12"x6" Barnes.
14"x6" Hendey, t. a.
16"x6" Monarch, q. c. g.
18"x8" Greaves-Klusman, q. c. g.
24"x12" Rockford, taper alt.
26"x16" Prentice, taper attachment.
63 $\frac{1}{2}$ "x36" 6" Centers Niles H. D.
60"x38" Bement-Miles.
- MILLING MCHES.:**----- Ingersoll Fixed Rail, 24"x21"x20" table.
Ingersoll Slab 30"x30"x12", m. d.
No. 4 Brown & Sharpe Universal.
Standard No. 4 $\frac{1}{2}$.
B. & S. No. 00 Hand.
- PUNCH & SHEAR:**----- Canedy-Otto, hand power, 1 $\frac{1}{2}$ "x1 $\frac{1}{2}$ ".
No. 6 Long & Allstatter S. E.
Roversford No. 3, 16" throat 1"x1".
Wain & Roos 15" throat, 3 $\frac{3}{4}$ "x1 $\frac{1}{2}$ ".
Massillon 22" throat, 1"x1" arch. jaw.
Cleveland "EF", 36" throat 1 $\frac{1}{4}$ "x1".
Cleveland E. F. 48" throat 1 $\frac{1}{4}$ "x1".
Beatty Single End 48" throat 1 $\frac{1}{8}$ "x1 $\frac{1}{4}$ " motor drive.
Industrial Double End, 3 $\frac{3}{4}$ "x3 $\frac{3}{4}$ ".
Lennox Rotary Bevel Shear, 3 $\frac{3}{4}$ ".
- GRINDERS:**----- Landis No. 5 Cylinder.
Bryant No. 6 Chucking.
Cincinnati 10"x48" Grinder.
- SHAPERS:**----- 14" 20", 24" Gould & Eberhardt, b. g.
24" American, s. p. d. Ser. No. 52881.
Air Compressor, Curtis, for spraying.
- MISCELLANEOUS:**----- Bending Rolls, 10"x3 $\frac{3}{4}$ " Cleveland motor drive.
Boiler, 100 H. P. Horizontal Tub.
Brake, Chicago Hand, 72"x1/16".
Hammer, 250 lb. Little Giant m. d.
Motors, 5 and 7 $\frac{1}{2}$ H. P.—3-60-220.
Planers, Cincinnati 48"x44"x12".
Planer, 48"x48"x21" Gray, 3 heads.
Planer, 48"x48"x16" D. & H. Openside.
Presses, No. 0 Consolidated, O. B. I.
Presses, No. 1—No. 3 V. & O.—O. B. I.
Presses, Nos. 18 and 19 Bliss, Perkins.
Press, 50 ton Louie Hydraulic.
Presses, Arbor, No. 3 $\frac{1}{2}$ Greenerd; No. 1 Atlas.
Saws, Hunter 24" hi-speed, m. d.; 18" Higley Cold.
Screw Machines, Cone Automatic 3 $\frac{3}{8}$ ", M. D.
Screw Mchs., 2 $\frac{1}{4}$ "x11" Acme; Meriden, 6 hole turret.
Surface Plate, 44 $\frac{1}{2}$ "x6' 8", 6 $\frac{1}{2}$ " thick.

RUSSELL MACHINE COMPANY
1447 Oliver Building, PITTSBURGH, PA.

Automatic Screw Machines

$\frac{3}{8}$ - $\frac{1}{2}$ " Cleveland model A.

$\frac{3}{8}$ - $\frac{1}{2}$ " Cleveland model B.

$\frac{7}{8}$ " Cleveland model A.

$1\frac{1}{4}$ " Cleveland model A, dbl. cross slide

$1\frac{1}{4}$ " Cleveland model A, single cross slide.

2" Cleveland model A, double cross slide.

2-2 $\frac{3}{4}$ " Cleveland model A, dbl. cross slide.

4 $\frac{1}{2}$ " Cleveland model A.

$1\frac{1}{4}$ " Gridley multiple, serial 8167.

Nine No. 2 B. & S. Turret Formers.

OTHERS

No. 6 Becker Vertical with Rotary.

15" Dill Slotter, nearly new.

No. 3 LeBlond heavy Miller, vertical attach.

6"x32" Norton Grinders, (two).

No. 70 Heald Internal Grinder.

No. 3 Foster hand Screw Machine.

2X Garvin Automatic Tapper.

42" Western Radial Drill.

36"x15' Betts Planer, two heads.

7 High Speed Drills, Henry & Wright, Sipp
Allen, Kokomo—all rebuilt.

*The stock list tells about our other
machines, with pictures. Ask for it.*

A. D. White Machinery Co.

108 N. Jefferson St.,

Chicago, Ill.

Pels FV-55 Billet Shear, 5¼" rd.; Williams-W. Plate Shr. 10½x1".
 1", 1½", 2½" Acme Upsetter or Header, steel frame, vert. release.
 1½", 2" 2½", 3" Ajax.
 1", 1½", 2" National Wedge Grip Bolt Header and Forging Mche.
 Nos. 1, 2, 4, 7, 9, 26 and 29-U Williams-White & Co., Bulldozers.
 No. 26 Williams & White Bulldozer with reversible clutch, mtr. dr.
 50, 75, 100, 150, 200 and 300 lb. Bradley Upright Hammers.
 40, 60, 80, 100 and 200 lb. Bradley Cushioned Helve Hammers.
 Nos. 2-B and 4-1 Nazel Air Forging Hammers.
 No. 55 Toledo S. S. Grd. Press.
 Nos. 1 and 2½ Billings & Spencer Straight Sided Trimming Presses.
 Nos. 10 and 20 Quickwork Rotary Shears, 60" and 30" throat
 No. 52-A Waterbury-Farrel 8-hole Dial Press.
 No. 37½ Bliss S. S. Press, 6½" stroke.
 Solid Back Presses: Nos. 3 and 4 Stiles Patt., No. 33 Toledo, No. 34
 Toledo Grd., No. 3-A Bliss Adjust. Bed; No. 16 Bliss Hor. Pr.
 Rock River Sgl. End Punch, 16" thrt., arch. jaw, cap. 1" thru 1".
 Style EF Cleveland SE 24" throat, cap. 1¼" thru 1", arch. jaw.
 No. 2 Hilles & Jones SE, 20" throat, cap. 1" thru ¾", rapid action MD.
 Long & Allstatter Single End Punch, 48" throat, cap. 2¼" thru 1".
 Toledo Gate Shear, Geared cap. 60" x No. 11 gauge.
 New Doty Guillotine Shear, cap. 3½" round, MD.

[Nos. 30, 16 Natco Mult. Drill.	24" Queen City Shaper.
Barrett Boring Mill.	No. 25 Oesterlein Univ. Miller.
18" Newton Slotter.	No. 3 Pratt & W. Die Sinker.]

RFV 30 Pels Bar and Angle Shear, cap. 3" rd., 7x7x¾ angles.
 Die Sinkers: No. 3 P. & W. No. 5 Jackson; No. 6 Becker.
 12" Wall Radial Drill for Structural Work, M. D.
 Threading Machines: 1 & 2-sp. Acme & Landis 1" to 4" Single Sp.
 1", 1½", 2" Landis 2-Spindle with and without lead screws.
 Thread Rollers ¾", ½" and ¾" capacity.
 Pipe Threaders, Williams 8"; Saunders 4".
 Thread Rollers, Cold Headers and Bolt Trimmers, Bolt Pointers,
 Nut Tappers and Hot Pressed Nut Machines.
 6 & 8-Sp. National and Acme Semi-Auto. Nut Tappers, ½" to 1½".
 Blakeslee Metal Washer, motor drive.
 Wire Straighteners, 3/16", ¼", 5/16" and ¾", Shuster, Etc.
 No. 65 American Gas Heating Furnaces; 1A Carbonizing.
 General Electric Centrifugal Compressors.
 Lennox Throatless Shear, cap. 1/8".
 Williams Chip Crusher or Shredder; Forging & Spring Tapering Rolls.
 Double Disc Grinders, various makes and sizes.

Donahue Steel Products Co.

Specialists in Forging, Bolt, Nut and Rivet Machinery

74th and Ashland Ave.,

Chicago, Ill.

High Grade Machine Tools

Lathes

- 40"x20" Wickes heavy duty, S. C., d. b. g.
 36"x18" Fifield Engine Lathe.
 26"x16" Walcott, 3S. C. D. B. G.
 22"x18" American Geared Head, S. P. D. Q. C.
 27"x12" Sidney H.D. 3 S.C. B.B.G.
 21"x10" LeBlond, H. D. Grd. Hd.
 15"x10" Whitcomb-B. Q. C. 3 S. C.
 18"x8" Lodge & S. G. H. S. P. D.
 18"x8" Lodge & Shipley, cone dr. Q. C.
 14"x6" Hendey, Yoke Head, Q. C.

Grinders

- No. 70 Heald Grinder.
 No. 60 Heald Grinder.
 16"x72" Landis Crankshaft late type.
 10"x72" Norton pl. latest type, m. d.
 16"x48" Landis Crankpin self-con.
 No. 2 Landis. Universal.
 6"x18" Landis, self-contained.
 No. 1 LeBlond Tool Grinder.
 Modern Chaser Grinder.

- No. 28 Oesterlein, Plain.
 No. 1 1/2 Valley City, Plain.
 No. 6 Whitney Hand Millers.

Planers

- 16x16x36" Pratt & Whitney Planer.
 26"x26"x12" Whitcomb-B., 2 heads.
 36"x36"x12" Gray, 2 heads.
 48"x48"x16" D. & H. Opens. 2 hds.
 48"x48"x20" Gray, 3 heads.

Radial and Upright Drills

- 5" Cincinnati-Bickford, Gear Box
 S. P. D. Enclosed head.
 4" Morris Semi-Enclosed Hd., S.P.D.
 with motor.
 4" Bickford, S. P. D. thru gear box.
 26" Cincinnati Upright, C. D.
 26" Rockford Upright, C. D.
 4-spindle Barr Drill.
 6-spindle Rockford 20" B. G. P. F.
 20" Barnes Camel Back.

34" BULLARD NEW ERA VERTICAL TURRET LATHE

Gear Cutters

- No. 3-26" Brown & Sharpe, late type.
 No. 3-36" Brown & Sharpe, late type.
 39" Schuchardt-Schutte Gear Hobber.
 18-H Gould & Eberhardt Hobber.
 78"x24" S.S. Type Gear Hobber.

Boring Mills

- 34" Gisholt Vertical one turret head.
 34" Bullard New Era, rail & side hd.
 52" Gisholt, 2 heads, Power Rapid
 TRAVERS.
 72" Wain & King Vert. 2 hds. grd. fda.
 96" Bickford Vertical.
 No. 1 Rockford, Horizontal 2" bar.

Milling Machines

- No. 5 Brown & Sharpe Plain.
 No. 4 Cincinnati, Plain.
 No. 2 Becker Vertical Rotary table.
 No. 2-A Becker Vertical Rotary table.
 No. 3 Brown & Sharpe, Plain.
 No. 5 B. & S. plain cone drive.

Shapers

- 15" Smith & Mills.
 16" G. & E. High Duty, cone drive.
 24" Barker, B. G. Crank.
 24" Queen City heavy duty, cone dr.
 24" Hendey.
 20" Steptoe B. G. Crank.

Miscellaneous

- 1" National Bolt Cutter, complete.
 1 1/2" Acme double spindle Stay Bolt
 Cutter, with Landis Heads.
 No. 2 Kane & Roach Multiple P. & S.
 No. 5 R. & K. Am. Can Punch Press.
 No. 76 1/2 Toledo Grd. Punch Press.
 50 lb. Little Giant Hammer.
 1 1/2" Landis Double Spdl. Bolt Cutter.
 No. 42 Toledo Press.
 No. 75 1/2 Bliss open back, geared.
 No. 75 Toledo Press geared.
 Wickes Punch & Shear, 48" throat,
 1 1/4" thru 1 1/2".
 No. 8 Long & A. Punch & Shear.
 No. 2 Garvin Vertical Tapper.

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NEW 3 PHASE MOTORS CHEAP—FROM ½ H. P. UP

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| 12"x 8' Cleveland, geared head. | 16"x 8' Hamilton, quick change. |
| 14"x 6' Carroll-Jamieson, new, q. c. | 18"x10' American, quick change. |
| 14"x 6' Hamilton, grd. hd., motor dr. | 20"x10' Hamilton, rapid production. |
| 14"x 6' Monarch, quick change. | 24"x14' LeBlond. |
| 14"x 6' Sebastian, grd. hd., m. d. | 24"x24' Prentice, with raising block. |
| 14"x6' Worcester. | 3x60" & 3x60" Fitchburg, Lo-Swing |
| 14"x 8' Sidney, double back geared. | South Bend, new, all sizes. |

TURRET LATHES and SCREW MACHINES

- | | |
|---------------------------------|-------------------------------------|
| No. 52 National Acme automatic. | 18" capacity Smurr & Kamen. |
| No. 53 National Acme automatic. | 18" Milholland. |
| No. 54 National Acme automatic. | 2x24 and 3x36 J. & L. |
| No. 4 Defiance, 18" capacity. | No. 1 Foster, 13/16" capacity, (2). |
| 8" Acme. | 1" Pratt & Whitney. |

SHAPERS

- | | |
|---------------------------------------|-----------------------------------|
| 14" Niles, traveling head. | 16" Lodge & Davis, crank. |
| 16" Barker. | 24" Rockford, back geared, crank. |
| 16" O. & S., b. grd., new, low price. | 24" O. & S. back geared crank. |

PRESSES

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|------------------------------------|------------------------|
| No. 10 and No. 15 Excelsior, foot. | No. 4 Federal o. b. l. |
| Nos. 3-A & 5-A Willard inclinable. | No. 5 Federal o. b. l. |
| Nos. 1, 14, 2, 24 Robinson, new. | Emco bench. |

DRILLS and RADIALS

- | | |
|---|-------------------------------|
| No. 1 Baush multiple. | 32" Hoefler, sliding head. |
| Baush 5' radial. | 6' Ceiling drill. |
| Hilbert 3' radial. | 25" Kokomo high speed. |
| 22", 24", 26", 28" and 32", sliding hd. | 44" Stover. |
| 24" Bickford, tapping attachment. | Hole Hog, No. 66-D, 7-spindle |

MILLING MACHINES

- | | |
|-----------------------------|-------------------------------------|
| No. 14 American plain. | No. 25 Becker plain, power feed. |
| No. 2 Kempamith plain. | No. 2 H Brown & Sharpe plain. |
| No. 4 LeBlond plain. | Ingersoll 24" x 20" x 8" horizontal |
| No. 25 Bilton. | motor drive. |
| No. 7 Becker, Lincoln type. | |

GRINDERS

- | | |
|-------------------------------|---------------------------------|
| Nos. 1 & 78 W. & M. surface. | No. 60 Heald cylinder. |
| 6"x15" Fitchburg plain. | Schmitt cylinder grinder. |
| 12"x36" Cincinnati universal. | J B X, W. & M. tool and cutter. |
| 16"x42" Landis universal. | No. 10 Besly 18" double disc. |
| 36" and 66" Yates plate. | No. 20 Bryant, chucking. |

MISCELLANEOUS

- | | |
|--------------------------------------|--|
| Band saw, Clark, compound. | Planer, 36"x36" Gray, heavy duty. |
| Band saw, Napier 10"x10'. | Planer, 24"x24"x6' American. |
| Blower, No. 6 Piqua, pressure. | Planer, 36"x36"x14' Gray, 2 heads. |
| Blower, positive pressure, Leiman | Planer, 42"x42"x12' Gray, 2 heads. |
| Boring mill, Colburn No. 3, tur. hd. | Punch & shear, 1x1x10" throat. |
| Brake 10', Keene, 18 ga. | Riveting hammers, Nos. 1, 2, 3, 4-A |
| Brake, 12' Chicago Steel 18 gauge. | High Speed. |
| Broaching mchs., 1 and 3 LaPointe. | Sand blast, Boland. |
| Compressors, 6x8, 8x8 and 9x8. | Scale, 1500 lb. Toledo, dial type. |
| Furnace, Weco electric. | Shear, 60" Peck, Stow & W., 18 ga. |
| Gear cutter, No. 3-26 B. & S. | Shear, No. 362 Robinson. |
| Gear cutter, No. 13 Brown & Sharpe. | Shear, No. 562 Niagara. |
| Gear miller, Bilton No. 1. | Shear, circular, Pettingell, 60" thrt. |
| Hammer, 150 lb. Standard drop. | Threading mche., W. & P. 2-spindle. |
| Pipe machines, 2", 4" & 6". | Washing machine, Blakeslee. |

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37½"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
25"x10' Niles, q. c. g.

19"x10' Draper, patent head,
15"x8' Sidney, heavy pattern, q. c. g.,
s. b. g., taper attachment.
And many others.

TURRET LATHES

3½x28" Pond, triangular pattern.
3x26" Pratt & Whitney, hollow hex.
19"x7' Fay & Scott, back grd.

No. 22½ Garvin.
1½x9" Cincinnati-Acme, wire feed.
No. 2 Smurr & Kamen, wire fd., (5).

DRILL PRESSES

48" Almond, sens. radial, post type.
40" Barnes horizontal radial.

28" Aurora, sliding head.
24" Foote-Burt heavy duty.

MILLING MACHINES

No. 3 Brown & Sharpe, plain, cone
type.

No. 3 Becker-Brainard, new model,
q. c. g.

PLANERS

48"x37"x9' Sellers, 2 heads.

48"x48"x12' Gray, 2 heads.

BORING MILLS

Boring mill, No. 1 Sellers hor., 2½" bar.
Boring mill, car wheel, 60" Niles.
Boring Machine, special Journal
Bearing boring type, 26"x8'
Johnson, (2).

Boring, drilling and milling ma-
chine, Bement-Miles horiz., 4½"
bar, 14' 6" bet. heads, with revolv-
ing table.

MISCELLANEOUS

Arbor press, No. 3 Greenerd.
Arbor press, No. 8 Greenerd, 36"
bet. columns.
Arbor press, 20 ton Weaver.
Electric hoists, 1-ton cap. (5).
Gear shaper, No. 35 Fellows, straight
and helical heads.
Generator, No. 100 Oxweld acetyl.
Grinder, disc, No. 17 Besly.
Grinders, double end electric.
Hammers, 15, 25 & 40 lbs. Bradley
helve.
Hammers, 50 lb. Little Giant.
Hammers, 60 lb. Bellefonte upright, 2.
Molding machines Tabor (9).
Pipe machines, 4" & 8" Eaton, Cole
& Burnham.

Punch presses, all sizes, (15).
Presses, Waterbury-Farrel d. a., 24"
5" strokes, 28" bet. housings, auto.
roller feed, with cut-off attach.,
wt. 26000 lbs., new, (3).
Punch or gate shears, 72" Cleveland
multiple, 15" throat.
Riveter, air, 6" gap Allen, cap. 1½".
Riveter, air, 6" gap. Allen, cap. 1".
Saw, No. 6 Nutter & Barnes (2).
Saw and column facer, Q. M. & S.
No. 4-B universal, 31" blade.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.
Woodworking machines (5).

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Rebuilt Tools with a **MOREY Guarantee**

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- 3—Bullard 24", 36", 42" N. E.
- 2—Gisholt 53", 60", 2 heads.
- 1—Sellers 72" vertical, 2 heads.
- 1—Pond 10-24" vertical.
- 1—N-B-P 10-16" vertical, 2 heads.
- 1—Betts 12" vertical, 2 heads.
- 1—Niles 14" vertical.
- 1—Niles 16-24" extension vertical.
- 1—Barrett No. 3 horizontal.
- 1—Cleveland 24" bar, horizontal.
- 1—Pawling & Harnischfeger 34" bar
- 1—N.-B.-P. 44" bar, duplex contr.
- 1—Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 14—Baush Nos. 1 and 2.
- 2—Fox D-31.
- 1—Moline No. 5-D cylinder borer.
- 3—Natco Nos. 11, 12.

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- 2—Barnes 20" and 24" camel.
- 5—Detroit 5-spindle.
- 1—Foote-Burte 4-spindle.
- 7—Henry & Wright 2, 4 & 6-spdl.
- 2—Pratt & Whitney No. 2 gun.
- 1—New Turner No. 3 vertical.

DRILLS—Radial

- 1—American 3" motor drive.
- 1—Baush 6'.
- 2—Dreses 5', 6' plain.
- 1—American 6' triple purpose.
- 1—N-B-P. 96" plain.

GEAR CUTTERS

- 7—H. & S. 3x26, 3x36, 4x36.
- 3—B. & S. No. 6, 60" cap.
- 1—Brown & Sharpe No. 13.
- 6—Cincinnati 16" Hobbers.
- 6—Barber-Colman No. 12.
- 3—Fellows Gear Grinders.
- 6—Fellows Nos. 6, 61, 65, 615.
- 3—Gleason 6", 11", 15".
- 2—G. & E. Nos. 18-H, 36-H.

GRINDERS

- 4—Cincinnati No. 2, 12x36, plain.
- 9—Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 7—Norton 3x18, 6x32, 10x24, 10x36, 10x50, 16x36, 10x72 plain.
- 1—Norton 16x50 crank.
- 2—Landis 10x52 cam.
- 2—Diamond Nos. 2 and 3 surface.
- 1—Springfield Brandes vert.
- 12—Heald Nos. 65, 60, 70, 75, 80.
- 1—Bath Spline.
- 1—G. & L. No. 12 Teromatic.
- 1—P. & W. 22x7 Surface.

PLANERS

- 2—Putnam 26x26x8', 2 heads.
- 1—Detrick & H. 30"x10', 1 hd., o. s.

- 1—D. & H. 48"x96"x20' m.d., 3 hds.
- 1—Gray 38"x38"x20', 3 heads.
- 1—Cincinnati 48"x48"x16', 4 hds.
- 1—Gray 48"x48"x12', 2 heads.

HAMMERS

- 1—New Bradley 20 lb. helve.
- 1—Chambersburg 400 lb. bd. drop.
- 1—B. & S. 800 lb. drop.
- 1—Toledo 1500 lb. bd. drop.

MILLING MACHINES

- 6—B. & S. Nos. 2, 2B, 4 B, 5-B pl.
- 10—Cincinnati Nos. 14, 2, 3, 3-S, 4, 5 pl.
- 2—Garvin No. 134 plain.
- 6—Briggs type "A" mfg.
- 1—Briggs Type "B", 72" table.
- 1—Ingersoll 24"x24"x10' plan type.
- 1—Cincinnati No. 4, s. p. d. vert.
- 1—Cincinnati No. 2 vert., cone dr.
- 1—Taylor & Fenn vertical.
- 13—Becker Nos. AB, 6, C1, vert.
- 1—Cincinnati 18" duplex.
- 1—Kempsmith No. 33.
- 7—P. & W. 4x12, 6x14, 6x48, 6x80 th.
- 3—P. & W. 5", 8", 16" auto.

LATHES

- 2—Hendey 14"x6", 16"x8' grd. hd.
- 2—Sebastian 18"x5'.
- 6—Lodge & Shipley 18"x8' selective geared head.
- 1—LeBlond 23"x10'; s. p. d.
- 1—Reed Prentice 24"x12'; m. d.
- 1—Boye & Emmes 24"x12', taper.
- 1—LeBlond 25"x16'; cone drive.
- 3—LeBlond 28"x10' duplex crank.
- 1—Reed Prentice 27"x12' s. p. d.
- 1—Johnson 30"x12', m. d.
- 1—Niles-Bement-Pond 42"x24'.
- 7—LeBlond No. 12 multicuts.

Lathes of all sizes and types.

SCREW MACHINES—Automatic

- 14—Cleveland 1", 3", 4", 4 1/2", "A".
- 4—Cleveland 1", 3", 4", 1 1/2", "B".
- 17—Gridley 1", 1 1/2", 1 3/4", 1 1/2", 2 1/4", 4-spindle.
- 11—Gridley 3 1/4", 4 1/2", 2 1/2" single spdl.
- 6—New Britain Nos. 23, 24, 33.
- 3—Nat'l Acme Nos. 52, 56, 515.
- 11—P. & J. No. 5-A, No. 6-A.

TURRET AND SCREW MCHS.

- 1—Acme Fox Monitor.
- 6—Foster Nos. 2, 4, 6.
- 4—Greenlee 2 1/2x26.
- 10—J. & L. 2 1/2x24, 3x36.
- 1—Milholland No. 4.
- 3—W. & S. No. 4 universal.
- 2—Steinle 24" Turret.
- 2—Libby 18" Turret.

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32"x10' B. & E., q.c.hvy. duty \$1080.	16"x6' Bradford, q. c. tap. att. \$ 495.
20"x10' Monarch q. c. d. b. g. 675.	16"x6' South Bend, tap. att. 200.
18"x8' Hendey q. c. yoke head 785.	16"x6' Hendey g. h., q. c., t. a. 650.
18"x8' Gidding & Lewis q. c. 475.	14"x6' Hendey q.c., t.a., collets. 650.
18"x8' L. & S q. c., extra tur. 325.	14"x6' Mulliner, q. c. tap. att. 525.
16"x10' LeBlond q. c. 425.	14"x6' Flather, q. c. heavy. (2). 410.
16"x8' Whitcomb q. c., t. att. 375.	12"x8' Hendey, q. c. yoke head 425.
16"x8' Champion q. c., t. att. 375.	11 1/2"x6' Sidney q. c., (new). 325.
16"x6' Lodge & Shipley q. c. 275.	9"x12' Sundstrand grd. hd. (2) 185.
16"x6' Cincinnati, q. c. collets. 450.	8" Cleve. grd. hd., m. d., bench 115.

SHAPERS

12" Walcott Crank Shaper. \$ 100.	16" American Crank Shaper. \$ 450.
16" Smith & Mills Crk. Shaper 200.	16" Cincinnati, single p. d. 525.
17" Smith & Mills Crk. Shaper 300.	16" Hamilton Crank Shaper 450.
21" Smith & Mills crank, b. g. 575.	16" Gould & Eberhardt 625.

DRILL PRESSES

28" Cincinnati, sliding head. \$ 250.	4-sp. Kokomo Hi-Speed b. b. \$ 575.
28" Superior, sliding head. 225.	4-spindle Kern ball bearing. 425.
26" Prentice, slid. hd., tap. att. 350.	4-spdl. Allen b. b. No 2 taper 425.
vise table, single pulley dr. 350.	6-spindle Kern ball bearing. 575.
23" Snyder sliding head. 125.	4' Carlton Radial 850.
22" Cincinnati tap. att. b. g. 125.	20" Barnes, (4), each. 40.
14" Canedy Otto sliding head, motor driven, Timken Bearings (new). 125.	

GRINDERS

6"x32" Norton Plain (3), each. \$ 350.	No. 6 Gardner Disc Grinder. \$ 200.
12"x36" Landis Full Univ. 575.	24" Ransom 5 h.p., m. d. Snag. 150.
5"x14" Greenfield Pl. hyd. fd. 250.	No. 1 Bath Universal. 500.
No. 2 Oesterlein Tool & Cut. 250.	No. 11 B. & S. self-cont. s.p.d. 850.

SCREW MACHINES

No. 6 W. & S. b. g. collets. \$ 550.	No. 1 P. & W. 3/4" cap. (2) \$ 85.
No. 4 Foster b. g., fr. head. 400.	24" Acme Turret Lathe, complete equipment, tools. 325.
No. 0 B. & S. semi-auto. hand 175.	

MILLING MACHINES

No. 3 LeBlond Plain, d. b. g. \$ 525.	No. 1 Kearney & T. pl. s. p. d. \$ 525.
No. 1 1/2 B. & S. Universal. 525.	No. 12 B. & S. Prod., (2) ea. 250.
No. 1 1/2 American Plain. 375.	

MISCELLANEOUS

Gisholt Tub Grinder. \$ 95.	No. 3 B. & S. 36" Gear Cutter \$ 250.
Hendey T. R. Bench Planer. 200.	Robbins 2" m. d. Pipe Mche. 200.
3" Pneumatic Tapper. 150.	1" Acme Stud Threader. 400.
3" Shuster Riveter & Spinner. 100.	No. 3 LaPointe Dbl. Broach. 200.
12x12" Racine m. d. Hack Saw 275.	No. 3 Lees-B. Thread Miller. 300.
Dwight Slate Mark. Mches. 75.	No. 10P Marshall't'n Thr Shear 200.
No. 1 Baker 1 1/2" cap. Keyseater 275.	3" Garvin Hor. Tapper. 125.

The Toledo Mchy. Exch. Co.

18 North St. Clair St.,

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Boring Mills,----- Gisholt 36" Vertical.
Barrett No. 2 Hor. Bor. & Facing.
Fosdick Horizontal Boring, Mill-
ing and Drilling.

Millers,----- Pratt & Whitney No. 12 Lincoln
Type.

Screw Machines,-- Brown & S. No. 0 Automatic.
Millholland No. 3 Geared Head.

Squaring Shear, -- Stow No. 296 Power, 97"x14
gauge.

Straightening Roll, Bertsch No. 7½, cap. 50"x¾" plate.

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Warehouse Dayton, Ohio

The Seifreat-Elstad Machinery Co.

CINCINNATI

DAYTON

COLUMBUS

Bolt Cutters, 1" Wells; 2" Acme;

2" Landis, dbl. hd.

Bolt Threader, 2 Sp, Namco, ½" cap.

Boring Mills, 24" Bullard, prod. type.

42" Gisholt Vertical.

42" Bullard New Era.

96" Niles vert., 2 hds.

Boring Bar, Bertram, 2½" bar.

No. 31 Lucas, 2½" bar.

Drills.....D-66 Moline, 4 sp.

No. 30 Natco, 48 sp.

32" Mechanic.

34" Barnes sliding head.

Radial, 3" Marsh Sens.

Radial, 3" Cinti-Bick.

Radial 5" Cin.-Bick. Univ.

Radial, 6" American.

Gear Rougher 36 BM, Gould & E.

Grinders.....No. 1 W. & M., Univ.

No. 16 B. & S. 10x72 Pl.

10"x50" Norton.

84" Diamond Face M.D.

No. 1 Diamond Surface.

Hobbers.....Barber-C. Nos. 3 & 12.

Keyseaters.....No. 0 Mitts & Merrill.

No. 3-A Mitts & Merrill.

Lathes.....14"x8" American, M. D.

18"x8" Bradford.

24"x12" L. & S., Crank.

Millers.....No. 1 Dow pl. div. head.

No. 3 Cincinnati plain.

No. 2 Cincinnati, Plain.

No. 5-B Becker vertical.

Pipe Mche.....6" Landis; 6" E. C. & B.

Planers.....16" Niles plate.

30"x30"x8" Gray.

Presses.....Bliss N-1 Dbl. Act. Cam.

No. 21-B Bliss, Grd.

Nos. 3 & 4 Am. Can.

No. 2 Z. & H., O. B. I.

No. 5 Bliss Stiles.

Saw.....No. 12-B Higley Cold.

Screw Mches., Nos. 5 and 6 Wood

1¼" Gridley 4-sp. auto.

No. 7 Foster, friction head.

Shapers.....16" Cincinnati, back grd.

Shear.....42" Niagara 16 ga., 15"

gsp.

Also Large Unlisted Stock

THE E. L. ESSLEY • MACHINERY • CO

551 W. Washington Blvd., Chicago.

78-80 W. Water St., Milwaukee

Automatics, Nos. 53 & 55 Nat. Acme.
 Automatic, No. 24 New Britain.
 Bolt cutter, 24" Acme double head.
 Bolt header, 14" Ajax, steel body.
 Boring mill, 60" Niles B. P.
 Bor. mill, 30" Colburn, 1 turret hd.
 Boring mch., 44" N.-B.-P. duplex.
 Boring mill, 53" Colburn, 2 heads.
 Brake, 8"x16" Robinson m. d.
 Brake, 6"x10 gauge Dries & Krump.
 Cutting off machine, 6" H. & R.
 Flanging mach., McCabe, 3" cap.
 Grinder, No. 2 Landis, univ.
 Hammer, 300 lb. Beaudry motor dr.
 Keyseater, No. 2 Catlin 4"-2".
 Lathe, 42"x45" Pond, geared head.
 Lathe, 42"x24" Niles, cone head.
 Lathe, 26"/48"x14" McCabe, dbl. sp.
 Lathe, 26"x12" Greaves-Klusman.
 Lathe, 27"/30"x16" Reed-P., g. h.
 Lathe, 20"x12" Hendey, q. c. g.
 Lathe, 18"x10" Monarch, q. c. g.
 Lathe, 16"-18"x8" L. & S., q. c. g.
 Lathe, 20"x8" L. & S. select hd.
 Lathe, 16"x8" L. & S. selective head.
 Lathe, 16"x7" Lehmann, grd. head.
 Lathe, 18"x6" Rahn-L., q. c. g., taper.
 Lathe, 12"x5" Hendey, taper, draw.
 Lathe, gap, 28/48"x12" Harrington.

Lathe, turret, 14"x18", P. & W.
 Lathe, turret, 3x24 J. & L.
 Milling mch., No. 4GS Hendey pl.
 Milling mch., No. 3 Cincinnati cone.
 Milling mch., No. 2HP Cincinnati.
 Milling mach., No. 3B Milwaukee.
 Miller, No. 14 Garvin, vertical.
 Miller, No. 3 Becker vertical.
 Miller, No. 14-A Garvin plain.
 Pipe machine, 8" Jarecki.
 Pipe mch., 8" Saunders, belt dr.
 Pipe machine, 6" Oster belt.
 Pipe machine, 3" Jarecki No. 7B.
 Punch, 24" L. & A. No. 4 s. e.
 Punch, shear, No. 4 Buffalo Univ.
 Radial drill, 6" American universal.
 Radial drill, 4" Dreeses, s. p. d.
 Radial drill, 34" Mueller, cone.
 Radial drill, 34" Bickford, gear box.
 Shaper, 24" Cincinnati.
 Shaper, 24" Hendey friction.
 Shaper, 20" Steptoe, back geared.
 Shaper, 16" Smith & Mills b. g.
 Shear, 8"x3/16" Niagara No. 796.
 Shear, 52"x16 gauge Niagara No. 552.
 Turret lathes, 2A Warner & S. (2).
 Turret lathes, No. 1B Foster univ. (2).
 Welder, 15 k.w. Thomson auto. spot.
 Wheel press, 200 ton Putnam hydr.

Bennett Machinery Co.

30 Church St., New York City

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25' Sellers, Two swivel heads, Table 20' dia., Motor Drive.
 12' Niles, Two Swivel heads, Table 12' dia., Motor Drive.
 96" Betts, Two swivel heads, Table 96" dia., Motor Drive.
 60" Niles-Bement-Pond, Two swivel heads, power rapid traverse, M. D.
 60" and 42" Bullard, Two swivel heads, Single Pulley Drive.

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 No. 1 1/2-B Milwaukee Vertical.
 No. 2 Owen Universal.

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5' & 4' Cincinnati-Bickford Plain.
 4' American Plain; 5' Baush Plain.

MISCELLANEOUS

Lathe, 36"x30' Simplex, Grd. Hd.
 Lathe, 36"x30' Putnam, Gd. Hd., 2 carriages, Power, R. T.
 Turret Lathe, 18" Libby, S. P. D.
 Shaper, 24" Gould & Eberhardt.

36"x48"x8' Ingersoll Planer Type, 4 heads, Adjustable Rail.
 60"x60"x15' Newton Planer Type.
 No. 2 A S Milwaukee dbl. overarm.
 6' Dreeses Semi-Universal.
 5' Niles-B.-P., Semi-Universal.
 Duplex Drill, No. 1-S Garvin Hor.
 High Speed Drill, 4 Spindle B.B.
 Leland-Gifford, Power Feed.
 Pipe Machine, 8" Jarecki, S.P.D.
 Automatics, Nos. 5A & 6A P. & J.

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 No. 1 Newton vertical miller; 1½" Ajax forg. machine.
 No. 21 Garvin plain milling machine.
 Pratt & Whitney 2 spindle die sinking machine.
 Pond 48"x40" triple geared heavy duty engine lathe.
 LeBlond 21"x12" Q. C. G. lathe; 16"x8" Bradford Q. C. G. lathe.
 American 24"x12" Q. C. G. lathe; 24" Steinle turret lathes.
 6" Globe cutting-off machines; 60x60x18" Pond planer, 2 heads.
 48x48x18" New Haven and 48x48x8" Sellers planers, 1 head.
 30x30x10" Cincinnati and 36x32x10" Pond planer, 1 head.
 22x22x5" Gray planer, 1 head, No. 1 Catlin keyseater 1½" cap.
 Newton hor. boring mill 3½" bar; Fisher allig. shear 2½" sq. cap.
 3¼" Gridley single spindle automatic screw machines.
 No. 1 Pratt & Whitney hand screw machines.
 36" Cleveland single end punch & shear 1" thru 1" cap.
 42" Whiting single-end punch 1" thru 1" capacity.
 48" Cleveland single-end punch & shear 1¼" thru 1" cap.
 Morgan double end punch & shear 24" throat 1" thru 1" cap.
 Foote-Burt vertical 4 spindle heavy duty drill-borer & reamer.
 4 and 5" Drees plain radial drills; 66" Allen jaw riveter.
 12x36 Fitchburg cylindrical plain grinders.
 No. 5 Crosby Stiles punch press 2½" stroke.
 No. 2 Carlin alligator shear 5x5 cap.; No. 1½ Doelger & Kirsten shear.
 ¾x6 Lennox rotary plate split. shear; No. 2 Beth. rotary shear ¼" cap.

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Unusual Machinery Bargains

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 5" American Radial, triple geared, motor on arm.
 4" Triple Purpose American Radial Drill, motor drive.
 Nos. 4 and 14 Colburn Drill Presses.
 No. 2-B Edlund 4 spindle H. S., B. B. Drill (new machine) individual motor drive to each spindle.
 No. 13-C Natco Multiple Spindle Drill, 12 spindles.
 No. 3-A Warner & Swasey Screw Machine.
 No. 2 Brown & Shape Universal Miller, cone drive, tapered nose.
 No. 3-C Cincinnati Plain Miller, S. P. D. slotted spindle nose.
 No. 2 Brown & Sharpe Vertical Miller, S. P. D., P. R. T.
 24" New Era Type Bullard Boring Mill, side head.
 16" Gould & Eberhardt Back Geared Cone Shaper.
 No. 7 Fellows High Speed Spur Gear Shaper, M. D.
 5—No. 11 Brown & Sharpe Plain Grinders, self contained.
 14" Pratt & Whitney B. B. Vertical Grinder.
 No. 22 Heald Rotary Grinder, 12" chuck.
 No. 5-A Lees Bradner Gear Generator.
 12" Dreis & Krump Power Brake, ¾" capacity.
 50 ton Lucas Forcing Press.
 2" Model B. Cleveland Automatic, late type.
 Foote Burt Cylinder Honing Machine, single spindle.
 Bleveny Polishing Machine.

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- 1—No. 314 Baker drill.
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- 1—1/2" Manville D. S. O. D. heading machine.
- 2—2 1/4" Gridley 4-spindle automatic screw machines.
- 1—20" Gould & Eberhardt shaper.
- 1—24" Gould & Eberhardt shaper.
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- 3—7 1/2 H. P. U. S. motor driven smagging grinders.

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- 1—S-51 Ferracute D. C. Press, F. W. Type, 2" stroke, Weight 7200 lbs.
- 1—Adriance D. C. Press, F. W. Type, 33" width, 2" str., Wt. 5000 lbs.
- 1—No. 203-B Toledo D. C. Press, geared, (Cut and Carry Feed).
- 1—200 lbs Bliss 4 Peppet Drop Hammer with countershaft.
- 1—7/8" Cleveland Automatic Screw Mach., serial No. 30,000. (Like New).
- 1—3/4" Bushel National Oil Separator, with Countershaft.
- 1—No. 15 Lea-Simplex Cold Cut-Off Saw, (Like New).
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Warner & Swasey No. 2A All Geared Hollow Hex Turret Lathe	190.
Oliver 16"x7' Heavy Duty Engine Lathe, quick change gear, double back gear, pan.....	350.

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- 1-Spindle Avey H. S. Double Bearing Drill, No. 2 M. T.
- 1-Spindle Avey H.S.B.B. Drill (bench) No. 2 Morse Taper.
- 3-Spindle Allen H.S.B.B. Drill No. 2 M. T.
- 2 $\frac{1}{2}$ ' & 3 $\frac{1}{2}$ ' Cinti.-Bickford Radial Drill SPD tap. att., box tbl.
- No. 2 Oakley Universal Tool & Cutter Grinder.
- No. 1 $\frac{1}{2}$ Rockford Plain Milling Machine, vertical head.
- No. 1 $\frac{1}{2}$ Garvin Plain Miller, dividing head; vise and arbor.
- 16" Milwaukee Back Geared Shaper.
- 24" Rockford Back Geared Shaper.
- 2" Bignall & Keeler PDQC Pipe Machine.
- 3" Bignall & Keeler PDQC Pipe Machine.
- 16x8 Barnes Back Geared Lathe.
- 42" Gisholt Vertical Boring Mill, 1 swivel turret head, 1 swivel plain head. Late type. SPD.

Geo. M. Bernstein & Co.
221 N. Elizabeth St., Chicago, Ill.

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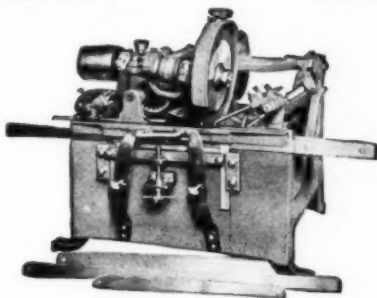
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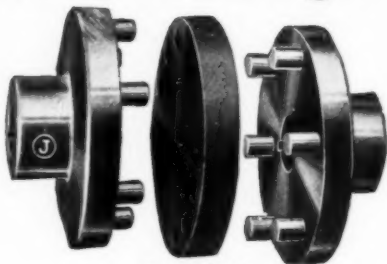
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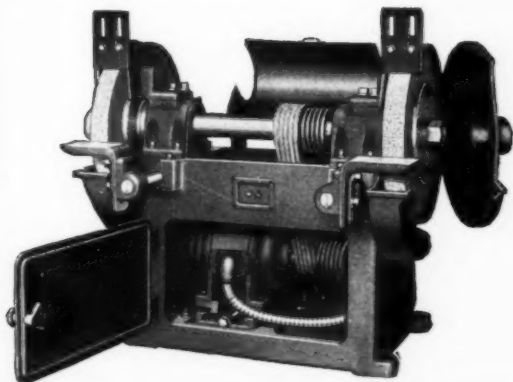
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Write for Bulletin 43. It illustrates many additional features of both the Single and Multi-Speed types of this new machine.

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